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COMPLAINTS

IT is still too early to assess with any degree of precision the full effect of the impact of the gas consultative councils on the operation of the nationalised gas industry. The councils are at present completing and submitting to the respective area boards their reports on the first year's work—work which to a large extent has consisted of setting up and defining the functions of divisional committees, informing local authorities, organisations, and consumers generally as to the personnel and purpose of the councils and their local representatives, comparing notes with other councils, enlisting the co-operation and goodwill of the area and divisional newspapers, and educating the consumer as to the procedure to be followed in making complaints or submitting suggestions about gas service. Some councils have been more eager than others in inviting consumers to contact local representatives. There has been criticism of an editorial comment in the *Journal* of April 5 in which, after mentioning that the Southern Gas Consultative Council had given less publicity than some of the others to the names of its local members we remarked that if the industry continued to give as good service as in pre-nationalisation days the divisional committees should find little to do, adding 'the fact that in the eastern area they are to meet only once a quarter is some indication of the small amount of work expected.' At the meeting of the Southern Gas Consultative Council at Bournemouth on June 14, Alderman J. W. Moore, the Chairman, made it clear that while the council would not encourage complaints which should properly be dealt with by the local manager it would welcome—and indeed it was its duty to deal with—matters that could not be dealt with at local managerial level, and where necessary to pass them on to the area board. Members of the council agreed that the public should be encouraged to make suggestions to them as public representatives. Some of them commented that although the council had passed its first birthday their neighbours were still unaware of the machinery afforded by the divisional committees for giving expression to their views on gas matters. Two Press problems remain to be solved. One is the question of keeping the local papers in the area informed of the proceedings of the councils and their committees; the other the question of each council learning what the other councils are doing. The former calls for work that would take more time than the present limited staffs of the consultative councils have at their disposal; the latter can be met in two ways, by regular perusal—without red-tape delivery—of the *Journal* and by periodic meetings of the 12 chairmen, such as the one that is to meet the Minister of Fuel and Power this week.

So smoothly is the machinery now running that at the Bournemouth meeting the Deputy Chairman suggested that the number of meetings should be curtailed so that members meet only once per quarter—in divisional committee in one quarter and in full council in another—but the Chairman overruled her suggestion on the ground that the council was required by law to meet not less than once in every three months.

Reporting a decision at the last meeting of the South Eastern Gas Consultative Council that the period of office of district committee members should terminate on May 31, 1951, we attributed to the Chairman, Alderman A. C. Warwick, the statement that 'this procedure would overcome the trouble of new nominations if local councillors on the committees failed to gain re-election in the May local elections.' What the Chairman intended to convey was that though members were elected for a period of one year, on this occasion, by extending the period of office until May 31, 1951, representing a period of 14 months, the date of retirement from a district committee would coincide with that of a large majority of borough council elections.

BOMBSHELLS

AT a time when they were hoping to reap some benefit from economies arising from integration, two at least of the area boards—and we anticipate that others will follow—have been compelled by increases in costs entirely outside their physical control to impose a general increase in the price of gas. In the case of the Southern Gas Board the 1d. per therm rise will just about meet the extra £400,000 a year which must be spent on higher freight charges, petrol tax, purchase tax on commercial vehicle chassis, and wage adjustments, and in Wales an extra three-farthings per therm is required to meet a rise of £158,500. Mr. Owen Guard con-

fessed to bitter disappointment when informing the Southern Gas Consultative Council about the increase, and a member of the Wales Gas Consultative Council called Mr. Mervyn Jones's announcement a 'bombshell.' None of the outside increases contributes anything to productivity; the only consoling fact is that the 6% rise in gas prices is modest by comparison with the 16⅔% increase in freight charges. Mr. Guard's statement at Bournemouth was followed by some party political comment on 'this unbusinesslike and inexperienced Government,' sternly ruled out of order by the Chairman. Having fired a number of questions at Mr. Guard the council accepted the inevitable, and complete confidence was expressed in the able manner in which the members of the board were discharging their duties and facing problems very different from those visualised when they did their original planning.

Prior to the latest increases the Southern Gas Board intended to bring into operation by next January a revised tariff structure designed on more simple lines than those now in existence and which would assist in ironing out the inequalities now apparent in parts of the area. But it is impossible to build a tariff structure or a rising market, or to say whether the market will continue to rise or become stable, and thus the revised tariff structure will be held up indefinitely. Economies in connection with coal shipment, development of coal and coke handling plant and methods, integrations, insurances, and other matters are beginning to become apparent, but they cannot hope to keep pace with the increases outside the control of the board.

A statement issued last Friday by the North Western Gas Board indicated that the latest increases in costs will force the board to give early consideration to the price of gas in the area. While the increased costs will be, to some extent, offset by economies already obtained by the board's first steps in re-organisation and technical improvements, it seems likely that the balance will eventually have to be borne by gas consumers in the form of increased gas charges.

HOME SERVICE

THE 1950 Home Service Conference was, in many respects, similar to its predecessors. There was the usual good attendance (160 this year, an increase of 20 on 1949), the usual enthusiasm and keenness on the part of delegates, and the skilful and witty chairmanship for which Mrs. Eileen Murphy is renowned. To our mind, however, there was one aspect of the conference which was an improvement on previous years. This was the balance of the programme—always a tricky business for the organiser of a technical or semi-technical meeting. Interest must be sustained by means of changing subject-matter and varied viewpoint; light relief must be of short duration to preserve its potency; technical infomation must be concise and at a level suited to the audience. These requirements were carefully observed, and as a result the proceedings went with a swing. Particular mention might be made of the two 'technical' contributions by Messrs. Dunning and Davis. Nothing is more difficult for acknowledged specialists in a highly technical subject than to reduce their expositions to a level at which they may be readily assimilated by a primarily non-technical audience. Mr. E. W. B. Dunning and Mr. J. E. Davis achieved this with remarkable success, thereby rendering a considerable service to the home service advisers present whose opportunities for appreciating the niceties of aerated gas burners and load building are few and far between.

It is, we feel, a source of pride—and comfort, too—that the gas industry has in its service a body of ladies so obviously expert in their subject and sincere in their approach to their work. For this team has not been built by the hand of good fortune alone; it has been trained and moulded systematically. Indeed, it might be said that the force has been achieved by affectionate guidance, for Mrs. Murphy's long association with home service and devotion to its growth and interests is a phenomenon for which the whole industry should be grateful. That home service has an important place in the future is indisputable, and Sir Edgar Sylvester's comments at the opening of the conference showed in broad outline the course likely to be followed. 'The future development of gas and coke sales,' he said, 'depends very largely on the creation of an accurately informed public opinion. Home service advisers are in an exceptionally good position to spread propaganda and. . . . are in touch with housewives and with important groups of consumers.'

The value of 'home service' carried out by the gas industry is being more generally appreciated. On a later page will be found a report of the conference, which will be featured in more detail in the next issue of *Gas Service*.

JUNIOR ACTIVITIES

WITH its total membership of 642 the London and Southern Junior Gas Association is the largest of the 10 junior associations, and at the current juncture two of its members hold office in the Joint Council of British Junior Gas Associations—Mr. G. G. Warne (Past President) as Executive Chairman, and Mr. W. F. Pritchard as Hon. Secretary-Treasurer. The Association has just concluded a session of 10 visits and seven general meetings, one of which was a short paper evening with the newly-introduced President's Prize as incentive to effort on the part of members not having the time or facilities to prepare a full length technical communication. Comment was made at the annual meeting on the large number of visits and the strain that such a list might impose on the indulgence of the area boards who have rightly afforded increased facilities for members to participate in the Association's activities. We have on more than one occasion put forward the view that the programmes of the junior associations as a whole are too crowded, the meetings too frequent. It should be recorded, however, that at the meeting of the London Juniors both the President and the Secretary commented that the motive in arranging such a long list of visits and papers was to offer alternatives to meet members' different interests, and that in fact there was not a marked increase in attendances at either form of gathering. From both the President and the Secretary came assurances that in the aggregate the attendances at visits had not

been abnormal; that in most cases the numbers of guests had been strictly limited; and that the motive in extending the list was to offer alternatives for those with different interests.

We were interested to learn from the Executive Chairman of the Junior Associations' Joint Council that the understanding between the junior associations and the area boards is very real—a relationship closer, indeed, than existed between the juniors and the chief executives of gas undertakings in the pre-nationalisation era. This help from the boards, it was stressed, has been particularly important in the more widely scattered areas where facilities for attending meetings are of greater significance than in the Metropolis. In these days of rising costs no organisation can expand its activities without spending more money, and it was not surprising to learn that the London Juniors had to raise their membership subscriptions to help in checking a decrease in the balance carried forward. The argument for the increase was based largely on the rising cost of publishing transactions, a matter which we know from our long experience bristles with difficulties, not least of which is the growing number and length of individual communications. And before we go on to refer to Mr. A. H. Savill's Presidential Address to the London Juniors we would comment that, if published in full, this excellent communication alone would fill seven or eight pages of the *Journal*.

FUTURE RELATIONSHIPS

HAVING remarked on the length of Mr. Savill's address we hasten to endorse the tributes paid to him by the mover and seconder of the vote of thanks. It was an informative, stimulating, and thought-provoking address of a quality so high as more than to justify its length, covering, in the first part, the outlook for the juniors in the new Institution set-up, and in the second part a statesmanlike review of developments in gas production practice in the first post-war quinquennium. In the one or two years in which negotiations have been proceeding for the incorporation of the senior associations as district sections of the Institution, there has been little said in open forum on the position of the juniors, whose cause was vigorously championed by Mr. Savill. Some have essayed to express similar thoughts in connection with the changes in the status of the seniors, but have not been anything like so forthright. While the relation between seniors and juniors has been, and remains, most cordial, the actual link has amounted to little more than formal affiliation, with an exchange of council members. Eighteen months ago there was some hint of the junior associations becoming student sections, each affiliated to its appropriate district (senior) section, and a memorandum on the history, functions, and activities of the junior associations was prepared and submitted to the Institution by the Juniors' Joint Council.

Mr. Savill thinks such a change not only unnecessary but wrong in principle. He feels that it can only lead to a number of the industry's technical staff being deprived of an important part of their training. The junior associations, with an aggregate of some 2,500 members, exist for the sole purpose of extending the general knowledge of members and supplementing the training they receive in the routine of their daily tasks. Such further education of the less senior members of the technical staffs can react only to the ultimate good of the industry, and Mr. Savill deems it to be 'most undesirable' to tamper with an organisation which is fulfilling so well a function which it is unlikely would be carried out so well under any other method of grouping. At the same time he admits that tradition alone should not influence any ultimate decision. If the work of the junior associations can be performed more efficiently as a result of some reorganisation it is only fit and proper that the necessary changes in constitution and methods should be made. We would stress, however, that whatever the eventual changes they should be aimed to encourage studentship of the Institution of Gas Engineers, which is open to all those who are undergoing technical training in the gas industry of a character approved by the council and are studying for the Associate Membership examination, or for the B.Sc. degree of a British university in engineering or other approved subjects.

It is essential, in Mr. Savill's view, that the juniors should plan their own programmes and run their own meetings, while not disdaining help or advice from whatever source it may come; the more they are left to work out their own salvation the better. Education and training, always of supreme importance to the juniors, are likely to become even more important in the changed circumstances of the industry, with the Gas Council making use of the services of the Institution of Gas Engineers. The Institution's new scheme provides for an Associate Membership examination, replacing the present Ordinary and Higher Grade examinations. Although it involves more work on the part of the student it has the advantage that he will more easily be able to qualify for corporate membership of the other engineering Institutions and as his education will not have been so specialised it will be easier for him to transfer from one associated industry to another. Applicants for full membership of the London and Southern Junior Gas Association must have definite technical qualifications. In addition, under a new clause approved at the annual meeting, they must have held for at least three years a technical or administrative position of such responsibility as make them suitable in the opinion of the council for full membership.

LINK-UP

WITH the publication this month of a journal aptly entitled *Link-up* the North Western Gas Board enters the ranks of those area boards which publish a regular staff magazine. *Link-up* thus joins the *North Thames Co-Partner*, the *West Midlands Magazine*, *Segas Journal*, and *Emgas*. It would be invidious to make comparisons between the four publications; more than that, it would be almost impossible, since their style and character reflect quite clearly the degree of independence and autonomy that exists in each area board. Suffice it to say that *Link-up* as the baby of them all is well worthy to take its place alongside its predecessors in the industry. The magazine has achieved in its first issue a happy marriage between what might be two conflicting aims—the desire to publish articles of general interest and the need to report major activities within the groups and local undertakings. In particular, it proves that a staff magazine need not go outside its own readers, or potential readers, to find ample material for attractive treatment; a collection of clocks by a part-time member of the board, a day in the life of a home service adviser, and the experiences of a local engineer

and manager as a war prisoner of the Japanese make excellent reading, enhanced by first class photography. *Link-up* reveals the touch of an experienced hand behind the scenes—its lay-out, photography, and use of type are all of high quality—and its author, whom we regret remains anonymous, is to be congratulated on a publication which will be widely read both inside and outside the North Western area.

Letters to the Editor

OPERATION EFFLUENT

DEAR SIR,—I am grateful to Mr. Badger for drawing attention to the work which was carried out in the laboratories of the Gas Light and Coke Company on the equilibria between aqueous solutions of ammonia and carbon dioxide and the ammonia in gaseous phase. Since reading his letter in the *Journal* of June 7, I have renewed my acquaintance with those papers in the *Journal of the Society of Chemical Industry*, and I suggest that others who are concerned with ammonia washing processes on gasworks might also wish to study them, if they have not already done so. Mr. Badger points out that the earlier results of Hollings and Pexton were revised and extended to cover a wide range of liquors likely to be found in washers and condensers.

I would like to say, however, that at the Felixstowe meeting my object in that part of the discourse was to give a simple picture of the ammonia extraction process with some practical illustrations, mainly for the benefit of engineers and managers, the majority of whom are engaged in running small works, where a little help might be useful to enable them to get better results in order to reduce some of the difficulties connected with the disposal of effluents.

I wish to clarify five points, of which it is hoped those who have read my paper will take such notice as they think desirable.

(1) I said, 'There have not been many papers to which engineers could refer for data.' I meant those papers and contributed articles to which in the normal way they would have access, and which they could use. I thought and still think that the J.S.C.I. papers referred to are too abstruse for the immediate purpose in view.

(2) Mezger and Payer's paper, published in 1925, was the first to deal with the subject. A considerable amount of work was done at the Bankside works of the South Metropolitan Gas Company in 1926 and the succeeding years. Several modifications of the scrubbing process were tried out on full works scale, including acid washing. The latter process was in operation before that time at Bournemouth, where I saw the plant in company with the late Mr. Parrish, who took a direct and very lively interest in this investigation. I took the opportunity while this was in progress to accumulate data regarding equilibrium conditions in the works scrubbing plant, which was purifying gas produced in inclined retorts. Some bench scale work was also carried out. Some of this information was used to build up Table II in my paper to the Eastern Association, and I would say that calculations based on Mezger and Payer gave results in fairly good agreement over a wide range with actual tests for ammonia in the gas.

Free NH_3 in liquor. Grammes/100 ml.	*Test results were lower by (Grains/100 cu.ft.)*	*Difference expressed as percentage of test results.*
Up to 0.35	1.4	4.5
1.25	1.8	4.9
4.5	4.0	2.3
5.5	10.0	4.9

I believe there is some good to be found in most things if we look for it and I would not say of this early work of Mezger and Payer that it was 'quite worthless.' From a practical point of view I would say it served a useful purpose, and curiosity has impelled me to look up the S.C.I.'s Annual Report for 1925 in which I find Dr. King said, 'An interesting paper by R. Mezger and T. Payer gives data on gas washing which should be of considerable assistance in the control of plant.' I will also re-examine those old results to find out how the more up-to-date research fits into the picture drawn at Bankside over 20 years ago. That will be an interesting task.

(3) I agree there was some experimental weakness in that investigation, as was pointed out in this contribution by Pexton and his colleagues to the J.S.C.I. of 1938, but I notice that in his letter Mr. Badger only used the word 'seem' in this connection.

It was realised that some constituents of gas liquors other than the ammonium carbonates would affect results to some unknown but probably small extent, and allowance was made for sulphides. Having in mind that most of the liquors with which we were dealing would be in the middle range of the CO_2/NH_3 ratios I considered that Mezger and Payer's figures would be good enough for practical purposes. The results quoted in the table above indicate that was the case.

(4) I used some figures in Table III of my paper derived from Mezger and Payer and some experimental results of my own in the most relevant part—*i.e.*, below the ratio 1.3—only to illustrate the point that with the low CO_2/NH_3 ratios the ammonia content of the gas was increased very considerably.

Mr. Badger's new figures, interpolated from their determinations, also illustrate that point equally well and it is interesting to plot the two sets of figures on the same graph.

(5) Similarly, I used Hollings figures in Table I of my paper to illustrate the effect of temperature, and as regards the actual ammonia content of the gas I was careful to say that for most practical purposes the ammonia content can be estimated approximately by using the curves. I might have added that it does not take very long to test for ammonia in the gas.

At the meeting, where large graphs were exhibited, I explained that owing to shortage of time it was not possible to get graphs into the paper, and it was only for that reason that I put in the three tables of figures to enable readers to draw their own if they wished.

Having had practical experience of ammonia washing with virgin liquors on a few gasworks and weighed up the pros and cons I am not prepared to say more about it at the moment than I said in my paper: 'I think now that the game is not worth the candle—except maybe in very exceptional circumstances.' Is that overstating a case?

I am firmly of the opinion that on the large majority of gasworks the simplest possible arrangement of condensing and washing plant of the highest efficiency, coupled with the minimum of pumping of virgin liquors and scrubber liquors, is the most desirable thing at which to aim. In this connection, Sir, may I refer again, as I did at the meeting, to the contribution to your *Journal* of November 3, 1943, made by Mr. C. Cooper, of which I am fortunate to have a reprint. That article appeared at a time of great stress during the war and I believe many people missed it for one reason or another. The table of figures and the graph in that article are easy of practical application without having to do long calculations for which works engineers really have not sufficient time, even if they had the inclination, during or after their day's work.

Yours faithfully,
PHILIP WEDGWOOD.

18, Watford Road,
St. Albans, Herts.
June 16, 1950.

WHO PAYS?

DEAR SIR,—Your Editorial, 'Competition and Service' (June 14) in which reference is made to the recent paper by Mr. G. A. Burch, has prompted me to select a few points from it as follows:—

1. To re-introduce and maintain a scheme of whole house inspection on the scale operated in the Portsmouth area in the 30's would be quite prohibitive in cost if it must be paid for as a percentage charge on the price of gas.

2. No whole house maintenance of which Mr. Burch had knowledge had been adequate to keep consumers' meters, pipes, and appliances in good condition. In all cases supplementary maintenance was required to cater for the needs of certain appliances.

3. It would be far more equitable to charge for such a service in the meter rent, and to raise the charge on some kind of a sliding scale designed to benefit good consumers.

4. It seems more in keeping with economy to restrict regular maintenance to those appliances where it has always proved a necessity. (Query: For 'appliances' read 'installations'?)

These points seem striking and worthy to be faced. So does that by Mr. C. R. Ingham in the discusion on I.G.E. Communication No. 366 (*Gas Journal*, June 21, page 860):—

5. A householder did not buy a car or a wireless set and expect free service.

Having regard to the new opportunities which the gas industry has to evaluate correctly and to co-ordinate its vast experience of service and maintenance, the following questions (numbered to correspond with the extracts above) seem to merit attention.

1. (a) How was the scheme of whole house inspection financed? How far was it a success and in what ways did it fail in promoting business and cutting losses?

(b) Is it not yet possible to assess the average life costs of installations and to quote prices for purchase, hire purchase, and hire, to include a due proportion of such costs?

Has sufficient attention been paid to the effects on such costs of good or bad installation, good or bad initial regulation, good or bad maintenance, over-maintenance or under-maintenance, variations in gas quality or pressure, and other factors affecting the end cost (as distinct from the initial cost) of the installation? Is organisation and training such as to increase or decrease service costs?

2. What was lacking? Is 4 below the answer?

3. (a) From the consumer's point of view, why should he pay anything for a meter which may be considered part of the service put in by the gas board to enable it to supply and to charge him for gas, and to which he grudges house-room? Should additions be made to such charges as already are resented?

(b) 'To benefit the good consumer' why not define 'maintenance' at an agreed charge or included in installation price, and then charge extra for work not necessitated by faulty material or manufacture (manufacturers' responsibility) or faulty specification, installation, regulation, or maintenance (gas board responsibility)?

4. Why not whole house service on the basis of essential installation maintenance during which needs related to meter, pipes, and other appliances should become apparent? Cannot service be organised and training be such that, during a visit to one appliance as installed, the whole house is checked and a report made and action taken?

5. Is not a car or a wireless set covered by some guarantee of free replacements? Should gas boards follow the practice of charging for labour to fit free replacements? Does a car have to be installed, or does car or radio have to be regulated for different qualities of 'gas' at different pressures? If a car is so neglected as to become dangerous, it becomes a matter for the police; should this apply to gas installations? Car owners are encouraged to carry out maintenance; should consumers be encouraged to service and maintain gas appliances? How much installation, regulation, and maintenance, does a wireless set need; and what does the owner do if much maintenance becomes necessary? What will the owner of a gas appliance do if it becomes too expensive?

Such are some of the considerations needing attention in relation to certain basic principles concerned with the sale of gas and/or service, and the maintenance of those services which the consumer desires, at a price that he is able and willing to pay. For example, are we not concerned with effectively maintaining an adequate hot water supply with minimum trouble and minimum cost rather than with maintaining a gas water heater? Does not such service involve gas production and distribution, control of gas quality and pressure, service pipes, meters, consumers' pipes and fittings, as well as organisation, administration, and training? Is the consumer, on whom the whole business depends, interested in such things: or in obtaining a specified service at a price he can agree? If he cannot obtain the service, or if he is put to extra trouble or expense, will he not take his custom elsewhere?

Without in any way decrying the very great achievements of the gas industry, can it be said truly and universally that production—distribution—sales—and service are so good and so well integrated as to guard against the consumer's suspicion that he may have to pay for carelessness or lack of foresight by his supplier? Discussion and action within the industry are necessary, but is not the objective a satisfied, eager, and regular, customer?

No doubt these and many other questions are being asked and answered by those whose object is to improve service and to cut costs On the other hand, it might be a pity if even one of the old questions or principles of value were to be forgotten or submerged in all the new work which is going on so actively.

Yours faithfully,

T. B. V. HIRST.

9A, Cheviot Court,
Luxborough Street,
London, W.1.
June 23, 1950.

BOOK REVIEW

L'Industrie du Gaz d'Eclairage ('The Gas Industry'), by Messrs. Caussé & Goix, the former lately Joint Manager of the Marseilles gas undertaking, is No. 262 of a series of more or less popular scientific booklets issued by the publishing house of Armand Colin, Paris. There are some 190 pages, 6½ in. by 4 in., with 38 clearly drawn diagrams. It is paper backed and is sold for 180 fr., equivalent to about 3s. 6d. Addressed to the ordinary intelligent reader, interested in 'the great problems of modern industrial technique,' it is written in a pleasantly scientific vein and in just sufficient detail to serve its purpose or even a little more—it would indeed serve to give a very good idea of the gas industry to students of industrial chemistry. Pretty complete accounts are given of the methods of analysis of coal, gas, and coke both physical and chemical. The principal systems of gas-making plant are described with diagrammatic drawings with perhaps a little too much of some either now abandoned or used only in special circumstances. Physical and chemical purification is well described with outlines of the treatment of by-products. The advantages of gas as a fuel are so well summarised that we quote: 'Facility to obtain a good air-gas mixture, to regulate the quantities of gas and air, to regulate the volume of the flame and the temperature of the air and gas by pre-heating, to create an atmosphere of the desired temperature, neutral, oxidising or reducing, and to get rid of the products of combustion, and the elimination of storage.' Two disadvantages are admitted:—the low radiating power of the flame and the nature of the products of combustion, sometimes more or less toxic and corrosive and always humid. Practically no space is devoted to distribution, which is dismissed in five pages, while history and administration are allotted only three pages between them.

Diary

June 29.—North Thames Gas Consultative Council: St. Ermin's Hotel, Westminster, S.W.1. 2.30 p.m.

June 30.—Northern Junior Gas Association: Annual General Meeting, West Hartlepool.

June 30.—Waverley Association of Gas Managers: Annual Meeting, Y.M.C.A. Hall, 14, South St. Andrew Street, Edinburgh, 10.15 a.m., followed by luncheon at North British Station Hotel, Edinburgh, 12.45 p.m.

July 3.—Women's Gas Council: Executive Committee, Gas Industry House, 1 p.m.

July 4.—East Midlands Gas Consultative Council: Guildhall, Nottingham, 2.30 p.m.

July 4.—South Eastern Gas Consultative Council: 4/6, Wandsworth Road, S.W.8, 2.30 p.m.

July 10-15.—Fourth World Power Conference: London.

July 11.—British Standards Institution: Annual General Meeting, Council Room, 24, Victoria Street, S.W.1. 3 p.m.

July 14.—South Western Gas Consultative Council: Meeting, Taunton, 11 a.m.

July 17.—Eastern Gas Consultative Council: Connaught Rooms, Great Queen Street, W.C.2. 2 p.m.

Sept. 5-7.—Irish Gas Association: Annual Meeting, Limerick.

Sept. 18-22.—Association of Public Lighting Engineers: Annual Meeting and Conference, Bournemouth.

Sept. 20.—Southern Gas Consultative Council: Reading, 2.30 p.m.

A new British Standard for *pH* Scale (B.S. 1647: 1950) has been prepared as the result of a suggestion by the Royal Society that a standard *pH* scale was eminently desirable and that it should be such as to meet international agreement, including, if possible, agreement with the scale already proposed in the United States. The object of the standard is to ensure that, when different workers refer to a stated measure value of *pH*, they mean the same thing within ±0.005. The standard makes it quite clear that this degree of accuracy is only attainable with aqueous solutions at temperatures between 0° C. and 60° C., and that oxidising agents or other highly reactive materials tend to reduce this accuracy. Copies of the standard may be obtained from the British Standards Institution, 24, Victoria Street, S.W.1, price 2s., post free.

Personal

DR. A. G. GLASGOW

Dr. A. G. Glasgow, on June 4, had conferred upon him by the Wabash College, U.S.A., the Honorary Degree of Doctor of Law. The ceremony was full of colour, and we give below the Citation of Dr. F. H. Sparks, who conferred the Degree.

'ARTHUR GRAHAM GLASGOW, son of Virginia, a citizen of the World.

'It was sixty-five years ago this spring that you were graduated from Stevens Institute of Technology and began your life work as a young engineer by association with the United Gas Improvement Company of Philadelphia. You soon established Humphreys & Glasgow, Ltd., in Great Britain.

'Since that time, your enterprise and ability have resulted in phenomenal industrial accomplishment in both the Eastern and Western Hemispheres. The efficiency resulting from your inventions and improved processes, particularly in the gas industry, has been reflected in great industrial expansion and in great savings to private citizens.

'Your association with Stevens Institute as an active alumnus and as a trustee has given you an appreciation of the importance of these independently managed institutions in our overall American system of education. The nature of your industrial enterprise has brought you close to government and has made you conscious of the importance of the individual in a democratic society.

'By your accomplishments, by your public statements, and by your personal philosophy you have demonstrated your complete harmony with the cherished ideology of Wabash College.

'By the authority vested in me by the Board of Trustees of Wabash College and in turn conferred upon them by the State of Indiana, on recommendation of the Faculty and by vote of the Board of Trustees, I confer upon you the Honorary Degree Doctor of Law with all of the rights, privileges, and responsibilities appertaining thereto.'

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Mr. **Ralph Bint,** Chief Administrative Assistant at the Fylde Group offices, Blackpool, of the North Western Gas Board, became Lancashire's Tennis Champion by defeating G. K. Whitehead 2—6, 10—8, 8—6, 6—0 in the County Championship finals held at the Northern L.T. Club, Manchester, on Sunday, June 18. Mr. Bint has represented Oxfordshire since 1937 and since going to Blackpool in 1946 has represented Lancashire on five occasions in singles, winning nine out of the ten matches involved, including two against Yorkshire to assist Lancashire in reaching the semi-finals of the Inter-County Hard Court Competition (1949-50) for the first time in history. Apart from the playing side, Mr. Birt has been a member of the Umpires Association of Great Britain since 1937 with umpiring experience at Wimbledon and the British Hard Court Championships at Bournemouth (including the ladies doubles final in 1946). He is umpiring again throughout the 1950 Wimbledon championships. He is also Area Secretary for N.W. Lancashire which, at its inauguration as a separate area last year, comprised 18 clubs and one individual member. Today the N.W. Area membership is 48 affiliated clubs and 28 individual members.

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Mr. **Leslie Hardern,** Public Relations Officer of the North Thames Gas Board, has just been elected a member of the Housing Centre Trust.

Sir **Ben Smith,** K.B.E., is to give up the Chairmanship of the West Midlands Divisional Coal Board. Sir Ben, who is 71, has been Chairman of the Divisional Board since its constitution in the autumn of 1946. His successor will be Mr. I. W. **Cumberbatch,** O.B.E., at present Area General Manager of the North Staffordshire Area in the West Midlands Division. Mr. **G. H. Jones,** O.B.E., now Labour Director of the Divisional Board, will fill the vacant post of Deputy Chairman. The new Labour Director will be Mr. **Joseph Jones,** at present Deputy Labour Director in the Division. All these changes will take effect from July 1.

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NORTH THAMES APPOINTMENTS

Consequent upon the division of responsibility in the Uxbridge and associated districts, and upon the retirement of Mr. S. Hay, G.M., A.F.C., Group Engineer, Group III, the North Thames Gas Board has made the following changes in the grouping of stations

Beckton Group.—Mr. H. Bradley, Station Engineer, Beckton, ranks, as hitherto, as a Group Engineer. Mr. G. Dougill, Deputy Station Engineer, Beckton, ranks, as hitherto, as a Station Engineer. The stations in the Group are:—Beckton, Southend.

Group II.—Mr. J. A. Hepworth, Group Engineer. Stations:—Bromley (and Shoreditch), Bow Common, Nine Elms, Romford, Stratford. Attached to Group II:—Lea Bridge, Poplar.

Group III.—Mr. E. G. Stewart, Group Engineer. Stations:—Brentford, Fulham, Kensal Green, Southall. Attached to Group III:—Mill Hill, Hornsey.

Group IV.—Mr. J. W. Kaye, Group Engineer. Stations:—Ascot, Harrow, High Wycombe (and Marlow), Slough (and Maidenhead), Staines, Uxbridge, Windsor.

For commercial purposes the Uxbridge, Maidenhead, and Wycombe, Slough, Ascot, and Windsor Districts of the North Thames Gas Board will form the South Western Division. Mr. C. Pearson and Mr. P. G. Wright have been appointed Joint Divisional Managers of this Division.

Mr. A. F. Hetherington, D.S.C., has been appointed Divisonal Manager of the Central Division in place of Mr. F. J. G Blondin, who has retired.

Obituary

Mr. **Alfred J. Kingdon,** of Paignton, who died in a nursing home on June 4, aged 84, after a short illness, had spent his business career almost entirely in the gas industry until, to his regret, he relinquished his position on the nationalisation of the industry last year. From school he entered the employment, in a clerical capacity, of John Coates and Co., Gas Water, and Hydraulic Engineers, London, in 1881, and was connected with the firm (carried on for a time as C. R. Lee and Co.) until 1911. During that time he was largely responsible for the purchase and shipment of the plant and equipment for the setting up of a number of gasworks in Australia for the Australasian Gas Association (latterly the Colonial Gas Association) founded by the late Mr. John Coates. Mr. Kingdon eventually became Secretary of the Colonial Gas Association and remained until the transfer of the head office to Melbourne. Following his retirement in 1923, he became Secretary of the Westward Ho Gas Company, afterwards acting in a similar capacity for the Bude Gas Company and Okehampton Gas Company, of which he was also a Director. Mr. Kingdon and some friends acquired a controlling interest in gas undertakings at Battle, Heathfield, Aspley Guise, and Woburn Sands, which were later sold, respectively, to Hastings, Eastbourne, and the United Kingdom Gas Corporation. Later, Mr. Kingdon became General Manager of three gasworks in which the family held the principal interest at Fakenham, Watton, and Kelvedon, his connection with which ceased on nationalisation. A member of the Southern Association of Gas Engineers and Managers since 1924, he resigned last month

Home Service Looks Ahead

Successful Conference in London

THE value of business and social meetings in the gas industry, and the importance of recognising everyone as individuals whose thoughts and ideas were of value, were stressed by the Chairman of the Gas Council, Sir Edgar Sylvester, K.B.E., when he welcomed 160 Home Service Advisers to the 1950 Home Service Conference on June 15-16. 'I hope,' he said, 'that the idea will be extended to a great many people in the industry, because these meetings are a great source of strength.' Sir Edgar described how, shortly after nationalisation, when he was asked to speak to the Institution of Gas Engineers, he chose as the title for his address, 'Nationalisation and the Individual.' On that occasion he tried to show how the problem facing large organisations in relation to personnel was the same, whether they were nationalised or not. The recognition of people as separate individuals was tremendously important.

In American magazines, he continued, appears the slogan, 'Never underestimate the power of women,' and certainly in formulating a gas sales policy, it would be hard to over-estimate the importance of the woman customers' point of view. In proportion as the competition for the customer's money became keener, women became more skilful and discriminating in their buying. At present, domestic households accounted for nearly 70% of the total sales of gas. In order to increase these sales, gas executives had to study the housewives' viewpoint from several angles—for example, the economic possibilities of the fuel market and the incidence of competing fuels—and they must have under constant review positive measures for selling more gas to women in the light of their known buying habits. For unless the gas industry could keep pace with women's fashions—using the word in its broad sense to mean new ways of thinking and general outlook—it would have to put up its shutters.

Scope for the Future

The first Home Service Adviser, Miss Ida Cameron, was appointed by the Gas Light and Coke Company in 1895, just 55 years ago. She was appointed to make house-to-house visits to help housewives to use the new gas cooker which was then fast becoming popular in London. There were now something like 300 Home Service Advisers; it did not seem to him nearly enough, and he hoped that number would be increased. The widened scope of Home Service today was revealed by the appointment of Miss Mary Strong, of Newcastle, as Sales Manager of the Cumberland group of undertakings in the Northern Gas Board. They would all take pride in that appointment, and it might not be the last of its kind.

How could gas boards meet the needs of their customers? He believed that one answer to that question was to make more use of Home Service Advisers. Their task was not only to sell gas appliances, but to see that they were properly used, so that the customer was kept happy and the sales of gas were kept up. Many undertakings throughout the country had proved that Home Service paid, and they now regarded it as an essential and specialised aspect of public relations work. In the first place, existing customers were kept interested and possible new customers were attracted to demonstrations; a good demonstration was the best way to stimulate women's interest and lead up to sales. In the second place, the Home Service Adviser could call at the customer's own home and show the woman of the house how to use her appliances to the best advantage; when a customer learned to use her gas cooker like an expert there was little temptation to turn to competitive fuels. Thirdly, the future development of gas and coke sales depended very largely on the creation of an accurately informed public opinion. Home Service Advisers were in an exceptionally good position to spread propaganda in favour of gas and coke. They were in touch with housewives and with important groups of consumers who in their turn were able to influence their friends and neighbours—and everyone knew how effective a personal recommendation could be.

The work of Home Service Advisers was being stimulated by Discussion Groups, which enabled them to meet, exchange ideas, and discuss problems of general interest, and also by liaison with the Gas Salesmen's Circles. The Home Service organisation was completed by the advisory facilities afforded by the Gas Council and by the work of the Women's Gas Council in providing an organisation for women for the consideration of housecraft matters.

Wishing the Conference every success, Sir Edgar concluded: 'I feel myself that you can properly take a very great pride and find great happiness in your work. We all like to feel that this is something rather bigger than is suggested by its purely commercial aspects. You are taking part in an important crusade—to raise the standards of cooking in this country—and that is something of great value.'

Balanced Programme

The opening session took place at Gas Industry House under the Chairmanship of Mrs. Eileen Murphy, who officiated throughout the Conference, and it is of interest to note that the 160 delegates attending (20 more than last year) represented every area board. The programme was skilfully balanced, and covered every aspect of the Home Service Adviser's work. Delegates were instructed in the mechanics of the apparatus they used, and the manner in which their activities fitted into the larger pattern of the industry's manufacturing and selling policy. Equally, they received advice concerning methods of approach to individuals and audiences, and in the more advanced facets of expert cooking. Lastly, they benefited from the experiences of their own members, and had an opportunity to exchange ideas on every aspect of their subject.

Following Sir Edgar's message of welcome, Mr. J. E. Davis, Chief Technical Officer of the South Eastern Gas Board, addressed the Conference on 'Load Building,' presenting this somewhat contentious and complex subject from the viewpoint of those who are using gas service; his talk was admirably illustrated by means of a flannelgraph.

'Approach to Audiences' was the title of the next address, by Mr. Dennis Castle, well known as an actor and writer for stage and radio.

Three Aspects of Service

The Home Service Symposium has now become an accepted part of this Conference, and was represented this year by three short papers. 'The Future Consumer,' by Miss O. L. Humphries, Area Home Service Adviser to the West Midlands Gas Board, dealt with the necessity for making the youth of the country 'gas-minded,' and the means by which this could be achieved. Miss Humphries' own wide experience in this field, particularly in the Birmingham area, gave a flavour of authority to her comments on guilds, youth clubs and schools, and the various methods of interesting children in gas service. Mrs. D. M. Turner, Home Service Adviser at Rotherham, and Chairman of the East Midlands Home Service Discussion Group, dealt with 'The Practical Aspect of Home Service.' In her address she described the methods she employed to serve consumers in her own area of heavy industry and coal mining—by means of calls (installation, complaint, survey, &c.), kitchen planning, demonstrations, and testing of appliances. The third speaker, Miss D M. Inglis, Home Service Adviser of the York-Harrogate Group, and Chairman of the North Eastern Home Service Discussion Group, took as her subject, 'Demonstrating Today,' and dealt with demonstrating from the point of view both of the housewife and demonstrator. This concluded the afternoon session, but delegates reassembled during the evening for an informal session.

On June 16, following a private session during which various Home Service problems were discussed, Mr. E. W. B. Dunning, of Watson House, spoke on 'The Aerated Gas Burner as Applied to Gas Cookers.' His address consisted primarily of a series of experiments illustrating the properties of the combustible gases of town gas, the gas-air relationship in burner design, explosion of gas-air mixtures, ignition temperature, flame velocity, and the effect on the flame of port size, resistance in burner, aeration disc, burner volume, pressure control, injector orifice control, and variation in gas quality, &c.

Delegates were later entertained to lunch at the Hyde Park Hotel, Knightsbridge. Among those present were Sir Edgar Sylvester, Mr. Michael Milne-

Watson, Chairman of the North Thames Gas Board; Mr. F G. Brewer, Secretary of the Gas Council; Mr. R. J. Gregg, Publicity Manager of the Gas Council; Dame Vera Laughton Mathews, member of the South Eastern Gas Board; Mrs. Irene Barclay, member of the North Thames Gas Board; and Miss C. E. Ellington Wright, Chairman of the Executive Committee of the Women's Gas Council.

Expressing the thanks of those present to Sir Edgar Sylvester and the Gas Council, **Miss J. E. Lyons,** Home Service Organiser, Metropolitan Division, South Eastern Gas Board, said they were all conscious of the debt they owed to the Chairman of the Gas Council. At one time Home Service Advisers had been regarded as a fashionable but unnecessary luxury; it was largely due to Sir Edgar that they were now recognised as a necessary factor in the gas industry. He had expressed his sincere appreciation of their work and had outlined the rôle they would play in the future. This staunch, partisan spirit had given them faith, and they were grateful for his encouragement and guidance.

Replying, **Sir Edgar Sylvester** said he was very appreciative of Miss Lyons' kind words. It was a great pleasure to entertain them at this luncheon party, and he hoped that it had made a pleasant interlude in the series of business-like talks. It was clear, he added, that to Ascot, Eton, Harrow, and Wimbledon as examples of the art of fashion must now be added the Home Service Advisers' Conference; if their standard of cooking was equally high, consumers were fortunate indeed. They were all grateful to the various speakers at the Conference, and to the North Thames Gas Board which had kindly loaned their Edgware Road demonstration theatre, but special thanks must go to Mrs. Murphy whose hard work had ensured the Conference's success.

A pleasant tribute to the part Mrs. Murphy had played in organising the Conference occurred when **Miss M. G. Lloyd,** of Brighton, presented her with a book token as 'a small token of our love and appreciation, not only for today's events but for the many occasions on which she has backed us up.'

Mrs. Murphy acknowledged the gift.

The afternoon, which marked the close of the Conference, was devoted to a demonstration of advanced cooking by Monsieur C. Manzini, Chief Instructor of Westminster Technical College, at the North Thames Gas Board's Demonstration Theatre at Edgware Road.

Nalgo Abandons Wage Freeze

DELEGATES to the conference of the National Association of Local Government Officers at Eastbourne on June 14 voted in favour of a rejection of last year's conference decision to support the Government's 'wage restraint' policy. The acceptance of this change of policy was carried in face of opposition from the National Executive of the Association, who were instructed to initiate immediately a campaign for an all-round increase in salaries.

This campaign will, of course, embrace and affect those gas staffs who are members of Nalgo, which has a total membership of 190,000. The present position of these gas staffs in relation to salary scales was outlined at the conference by Mr. L. A. Garratt, National Gas Officer of the Association, at a meeting of gas staffs at Eastbourne on June 12. During the past months, he said, there had been protracted negotiations to establish a national agreement for scales of salaries. It had been expected that by then these scales would have been finally agreed and issued. Unfortunately this was not the case, but he was hopeful that agreement would be reached towards the end of the month. He considered the implementation of any scales of salaries to be more important than the scales themselves. The introduction of the 'Charter' for local authority staffs had been followed by considerable activity by the Appeals Committee; he hoped that they would not have cause for similar action on behalf of large numbers of gas staffs, but the machinery was there and if needs be they would use it.

The remarks of Mr. Garratt were supplemented at the same meeting by Mr. P. Ashen, the Chairman, who said that the administrators in the industry should take account of the spirit of pride in the industry which had existed in the past. During the last 12 months the administration of the industry had in some aspects gone ahead in leaps and bounds. In technical efficiency and in the provision for expansion in the industry they had shown great energy and foresight. The achievement of the gigantic task of transferring the accountancy of the industry into one integrated whole had been a source of pride not only among the administrators but among the staff.

'But if,' the Chairman said, 'the new administration forgets that spirit which existed in the past and indulges in any form of cheeseparing and whittling down of the provisions of the Charter on small things that will not amount to very much financially, then, in spite of all the technical efficiency and the pride they take in their efforts in the field of accountancy, they will have failed the gas industry.'

Mr. Ashen added that if it was necessary in the course of the negotiations to accept modifications for the sake of getting an agreement covering the whole country, then he would say that at some future time—and he hoped it would not be far-distant—they would have to go forward again. He was quite sure that it would be better if such concessions were not interpreted as a sign of weakness but were accepted in the full knowledge that in making them they had a strong Association.

A proposal to exclude staffs of nationalised industries from membership of Nalgo was rejected at the final session of the conference. Delegates preferred to accept the opinion of the National Executive that the aspirations of new members recruited from nationalised industries could be met in a satisfactory way by a structural and constitutional re-organisation.

Oxide Handling Simplified

We have received from M.R. Sales (H. A. Saunders, Ltd.), 836-842, High Road, North Finchley, N.12, particulars of the M.R. Bristol '20' Angledozer, which is useful in gasworks where space is restricted and manœuvrability and ease of operation are of vital importance. The main use to which it has been put is the breaking up and moving of iron oxide which has been emptied from the purifiers. Each purifier (see illustration) holds 120 tons of oxide, which cover an area of about 500 sq. ft. when emptied.

The oxide is unevenly spread and this, combined with the problems of manœuvring round supporting pillars, avoiding overhead mains and obstructions and the distances involved, makes careful choice of a machine essential.

Other applications of the machine include building site levelling, back filling trenches, road clearing, and pipe laying.

East Midlands Development Projects

Early Stages of Five-Year Plan

SOME striking figures have been published by the East Midlands Gas Board in connection with its capital expenditure programme. In the last three months capital expenditure of £785,000 has been authorised by the board, forming part of the £8 mill. five-year capital expenditure plan to extend and improve gas supplies throughout the 6,400 sq. miles of the board's area.

Outstanding among the projects now being planned is the installation of new manufacturing plant at the Litchurch works of the Derby undertaking with a gross capacity of 15 mill. cu.ft. per day. Expenditure of £500,000 for the first part of this project has been authorised.

Installation of additional boosting plant at the Grimesthorpe works of the Sheffield undertaking will cost £12,750. This step is being taken to satisfy the ever increasing demand for gas by large industrial consumers, and to improve supplies generally to other users.

It will also be a means of replacing with purified gas the crude gas at present supplied to some consumers in this area.

Gasholder Programme

Five gasholders are at present under construction in the Sheffield and Rotherham Division. Together they have a total capacity of 22 mill. cu.ft. and are situated as follows:

Meadow Hall Works, Sheffield, 8 mill. cu.ft.

Neepsend Works, Sheffield, 5 mill. cu.ft.

Car House Works, Rotherham, 6 mill. cu.ft.

Old Mill Works, Barnsley, 2 mill. cu.ft.

Gasworks, Worksop, 1 mill. cu.ft.

The first four holders will all be connected to the South Yorkshire Gas Grid and the increased storage capacity will make available an extra 4 mill. cu.ft./day, five days a week, without the aid of any additional gas-making plant. It is expected that all five holders will be in commission in 1953.

The story of the 6 mill. holder at Car House, Rotherham, is of particular interest, as it was originally intended to be of 3 mill. cu.ft. capacity. This doubling of capacity almost overnight was the result of happy co-operation between the contractors and the board.

It was in May, 1949, that the Ministry of Fuel and Power sanctioned the erection of a 3 mill. cu.ft. holder at the Car House works. A few days before the contractors were due on site for preparations and piling, however, it was decided to make the maximum possible use of the site and to install a holder of twice the originally agreed capacity.

Piling work thus commenced as planned, but for a 6 mill. instead of a 3 mill. holder, and the same rate of progress has been maintained since as would have applied had the original plan been carried through.

Integration of Mains

Over the next five years more than 1¾ mill. yd. of gas main will be laid to 100,000 new homes in the board's area. In 1950 alone nearly 10,000 tons of gas pipe will be used. By 1954 a further 100,000 yd. of main will be laid to reinforce existing supplies.

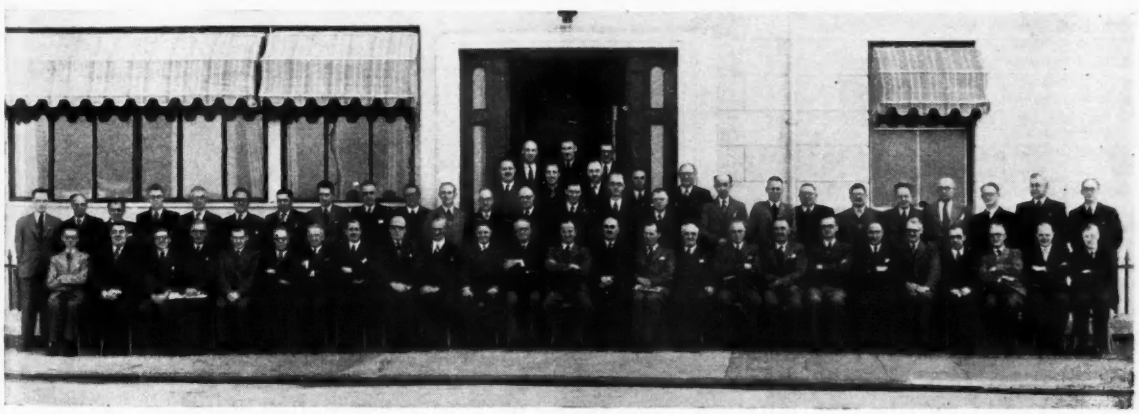
In a three year plan to link and integrate mains gas supplies, the board is taking advantage of large scale organising, possible for the first time by reason of single ownership. By the inter-connection of works and supply areas, enabling gas to be piped, in some cases from town to town, the aim is to carry peak loads without 'cuts,' and to maintain regular supplies more economically. This year 166,000 yd. of main will be laid for this purpose—first contribution to a 622,000 yd. target which will in the three years take more than 42,000 tons of gas pipe.

In February a main was completed which enables gas to be freely interchanged between the Meadow Hall works of the Sheffield undertaking and the Car House works of the Rotherham undertaking. As much as 3 mill. cu.ft./day can be passed in either direction. The maximum use can therefore be made of the two 2 mill. cu.ft./day carburetted water gas plants recently put to work at the Car House works.

The board is shortly to begin the laying of 2,520 yd. of 8 in. high pressure main through Ockbrook village to Nottingham Road, Borrowash, in the Notts and Derby Division for the purpose of effecting an all-round improvement in gas pressures in these areas. The consumption of gas within the Ockbrook and Borrowash area has increased by 43% since 1944.

East Midlands Display.—The Doncaster undertaking of the East Midlands Gas Board exhibited at the Ideal Home and Trades' Exhibition at Doncaster from May 31 to June 10. An encouraging number of enquiries were received and many appliances of all kinds were sold. A feature of the stand was that it incorporated one of the display units designed and manufactured for the board for use at exhibitions of this kind. Each complete panel of the conical units is of a different colour and is illuminated from the base by tubular lamps with striking effects.

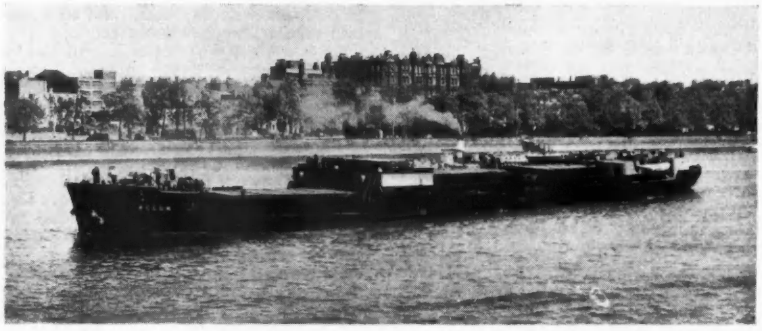
WALES GROUP CHAIRMEN AND CONVENERS IN CONFERENCE



Another very successful conference of the Chairmen and Conveners of the Group Committees which operate in the area of the Wales Gas Board was held recently at Aberystwyth. The conference was attended by the Chairman, Deputy Chairman, and all the members of the board, together with the chief officials of the area. This photograph, with the Chairman, Deputy Chairman, and full-time members of the board in the centre of the front row, was taken during a brief break in an intensive programme.

Maiden Voyage of the 'Accum'

The motor vessel *Accum*, launched by Mrs. Brian Wood, wife of the Secretary of the North Thames Gas Board, at Grangemouth on February 20, completed her maiden voyage from the north to Fulham gasworks on June 12. The *Accum* is a sister ship of the four other motor vessels now in use by the North Thames Gas Board and carries 2,600 tons of coal at 10½ knots from the north-east coast to Nine Elms or Fulham on each trip.



The *Accum* has no funnel and is thus able to go under the Thames bridges easily. The optical illusion in the photograph arises from the presence of a small steamer immediately behind the collier as she was passing the Houses of Parliament. Each of the crew has his own cabin. A photograph of the group at the launching ceremony was published in the *Journal* of March 8 (p. 581).

Visit to Howdon Works

A meeting of the Northern Junior Gas Association was held at Howdon on May 26, for an inspection of the progress of the reconstruction of the Howdon works, Newcastle Division, Northern Gas Board.

Prior to the inspection a short address was given by Mr. W. R. Garrett, Constructional Engineer to the Northern Gas Board. Mr. Garrett described, with the aid of drawings, the reconstruction work which was being carried out, and gave a description of the new carbonising plant which is being erected by Gas Chambers and Coke Ovens, Ltd.

The new carbonising plant will consist of two 4 mill. cu.ft. per day independent carbonising units, each unit comprising two benches of 18 intermittent vertical chambers divided into three settings of six chambers, *i.e.*, a total of 72 chambers. Each chamber will have a capacity of 4.14 tons based on a coal having a density of 52.5 lb. per cu.ft. The chambers will have a total height of 23 ft. 7½ in. with a major axis of 10 ft. 6½ in. and a minor axis of 7⅞ in. at the top to 12⅝ in. at the bottom. Allowing for scurfing, the maintainable tonnage carbonising capacity will be 540 tons per 24 hours. In addition to the new carbonising plant with its attendant coke handling plant and mess rooms, the reconstruction includes condensers, exhausters, detarrer, ammonia and oil washing plant, purifiers, benzole plant, carburetted water gas plant (4 mill. cu.ft./day capacity), booster, electric alternator, water softening plant, sulphate ammonia plant, ash handling plant, and railway sidings.

An interesting innovation is the inclusion of an oil washing plant before the purifiers. After the inspection of the works, tea was provided to members by the courtesy of Mr. J. E. White, Divisional General Manager of the Newcastle Division of the Northern Gas Board.

Gas Plant Claim

A dispute between the Nottingham Corporation and the Ministry of Fuel and Power over the amount of compensation to be paid for equipment of a gas meter testing station was heard on June 19 by the Gas Arbitration Tribunal in London.

The tribunal indicated that it would reserve its decision.

Sir John Howard, chairman of the tribunal, described the case as one which depended on the legal interpretation of compensation.

The Deputy Town Clerk of Nottingham, Mr. T. J. Owen, said the Corporation claimed £4,015 for the equipment, based on today's valuation, with an appropriate deduction to the extent the equipment would be less satisfactory than new equipment.

He submitted that the passage of the equipment from the Corporation to the Ministry involved loss by the Corporation and gain by the Ministry. Either the Ministry took over the equipment, or pay more than £5,000 for new equipment.

Mr. G. R. Ashworth, for the Ministry of Fuel and Power, said he was prepared to accept the figure of £4,015 as replacement value.

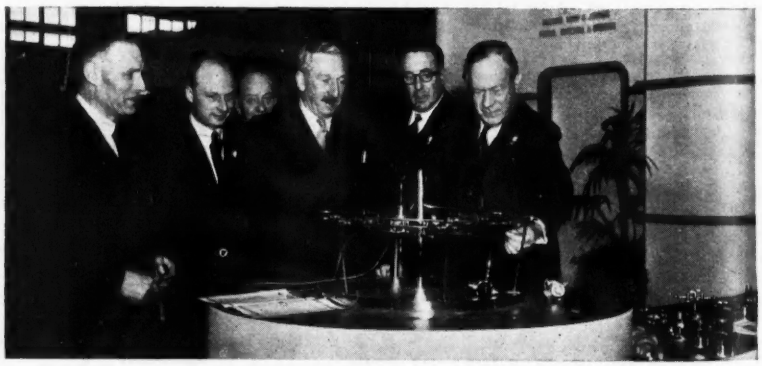
The Ministry had previously offered £2,000, but he was now instructed to increase it to £2,180.

Plea for Price Uniformity

At the second meeting of the Watford Divisional Committee of the Eastern Gas Consultative Council, at St. Albans, on June 12, the Chairman, Councillor R. N. E. Hinton, Watford, reported that the requests of several district councils urging a uniform price of gas to be charged for the whole of the area of the Eastern Gas Board had been before the consultative council on several occasions. The consultative council was in agreement with the board in stating that it was sympathetic to the views expressed by the councils, but it must be borne in mind that they must also have regard to the views of those consumers who might be called upon to subsidise by way of increased prices of gas, consumers in other parts of the area of supply.

He also reported that the estimate of the increased cost of coal and railway rates since vesting date which had now to be borne by the Eastern Gas Board, was equivalent to an increase of 0.6d. on every therm of gas sold.

The Chairman stated that the Eastern Gas Board had agreed to exhibit a notice in all showrooms and offices giving the name and address of the local member and the address of the Chairman of the



A late arrival from the 1950 British Industries Fair, this photograph is the first we have received showing the visit of the Chairman and Deputy Chairman of the Gas Council to Castle Bromwich. Between them is Mr. R. J. Gregg, Publicity Manager of the Council; at the left is Mr. H. R. Hems, Industrial Gas Officer of the West Midlands Gas Board. The apparatus they are examining is the 'Spersom' multi-safe control G.807, exhibited by Sperryn & Company. This new development, when inserted into the circuit of the normal thermo-magnetic type of safety pilot, provides an efficient and inexpensive protection against flame failures in the wide field of multi-burner appliances.

consultative council and setting out that in the first place all complaints or representations should be made verbally or in writing to the local manager as in the past; only when it was felt that representations had not been given adequate consideration should the matter be referred to the local representative of the divisional committee or to the consultative council.

Meter Reading

On the motion for the adjournment of the House of Commons on June 15, Mr. Joseph Hale, M.P. for Rochdale, drew attention to the discontinuance of joint meter-reading of gas and electricity in Rochdale. The system of joint meter-reading, he said, was instituted in Rochdale in 1941 when there was a crisis in manpower. When the Gas and Electricity Boards of the North West region began to operate they discontinued this practice.

Mr. Alfred Robens, Parliamentary Secretary to the Minister of Fuel and Power, replying, said that to have joint meter readings would not necessarily halve the manpower involved. Not all houses had both gas and electricity meters. It would take more time for a man to read two meters than if he had only one to read. And by reading two meters he would more quickly become weighed down by pennies.

Both the Gas and Electricity Boards were anxious that meter-readers should become something more than men who called out 'gas' or 'electricity,' stumped in, and stumped out again. They preferred that they should become really good public relations men helping householders with their fuel problems.

The Ministry considered it a matter on which it should not issue directions, it being left to the boards to decide in the light of local circumstances.

Countrymen Come to Town

Birmingham was the venue chosen by the Bath and West and Southern Counties Society for its Annual Agricultural Show, at Castle Bromwich, from May 31 to June 3.

For the Birmingham District of the West Midlands Gas Board this was the first occasion on which it had been associated with a show of this kind. Their comprehensive display, which was designed by the Central Showroom staff, was staged in

a 60-ft. × 40-ft. marquee, as shown above. It displayed not only the application of gas in agriculture, but also stressed the wide and varied service of the industry to the nation. The interior was divided into irregular bays dealing with gas in housing, education, health, large scale catering, with one section showing the many uses of solid smokeless fuel. 'Food Production and Preparation' and 'Industry and Commerce' were also featured.

Appliances and plant displayed included a gas-fired steam boiler, a greenhouse heater, cookers and water heaters, together with by-product derivatives such as fruit sprays, tar, sheep-dip, creosote, and sulphate of ammonia. The seven divisions of the board each contributed to the 'Industry and Commerce' section local products, in the manufacture of which gas had been used.

The garden lay-out of the interior, complete with seats and fountain, and the boldness of the marquee's exterior with 14-ft. high letters forming the word 'Gas,' attracted more than 8,000 people to the display.

NEW LIGHT ON THE SHOWROOM

The Northfield and Sutton Coldfield branch offices of the West Midlands Gas Board, Birmingham District, which have recently been relit with Falks 'Medway' 2580 fluorescent fittings, to the specification of the Chief Electrical Engineer to the Board, Mr. G. M. Rimmer.

Modern Fuel Serves Modern School

The Darlington undertaking of the Northern Gas Board has recently completed the equipment of a new dining room and all-gas kitchen at the Eastbourne Boys Secondary Modern School, Darlington. The dining room, which accommodates 200 children, is heated by overhead gas-fired heaters, thermostatically controlled.

The kitchen is designed to cook and service 400 meals in two sittings, and the equipment comprises: a double oven cooking range, double compartment pudding steamer, roasting oven, 30 gal. vegetable boiler and steamer, 40 gal. boiler, and a 6 ft. hot closet. A mechanical extractor is provided to a canopy fitted over the appliances.

Domestic hot water is provided from a gas-fired boiler with 150 gal. storage cylinder.

A duplicate dining room and kitchen is at present being erected to serve the Girls School adjoining. The architect is Mr. E. A. Tornbohm, A.R.I.B.A., A.M.T.P.I., Borough Architect to the County Borough of Darlington.

Fibreglass on Display

THE increasing variety and applications of glass fibre products were well illustrated on June 21 when the new offices of Fibreglass, Ltd., were opened at 63/65, Piccadilly, London, W.1. This company, which was formed in 1938, is a subsidiary of Pilkington Bros., Ltd., St. Helens; its two basic products, glass wool and glass yarn, are widely used, the wool in the insulation of houses, buildings, ships, aircraft, and in industrial and domestic equipment such as boilers, gas cookers, and refrigerators, and the yarn in the weaving of insulating tape, fireproof curtains and fabrics. The 'staple tissue' material has a particular application in

the gas industry for which the makers of steel and cast-iron pipes are producing smaller sizes of pipes factory-wrapped with staple tissue as a corrosion resistant. Additionally, fibre glass mats, phenol resin bonded, are used for the insulation of cast iron purifier boxes.

All these products and a sample of manufactured articles containing glass fibres, ranging from firemen's helmets to fishing rods, were displayed in the main showroom space of the Company's new offices, part of which is illustrated above. Designed by Mr. T. A. Bird, A.R.I.B.A., the offices comprise this central space surrounded by individual offices, typists' accommodation, and a conference room. The ceilings of the main space and of the conference room, and the walls of the typists' space, have been treated for noise absorption with 1½ in. of 'Fibreglass' resin-bonded wool faced with perforated hardboard. Sectioned models of a ship, a house, and a cooker show some of the uses of 'Fibreglass' in insulation, and on one wall an exploded view of an electric motor demonstrates the components in which 'Fibreglass' textiles are used. A series of panels show glass fabrics, both decorative and technical, and specially woven glass fabrics have been employed in curtaining the windows of the offices. The whole is tastefully and attractively decorated in pastel shades of blue, grey, red and yellow.

Trade Statistics.—Figures for March, 1950, issued by the Central Statistics Office in the Republic of Ireland, show imports of 22,880 tons of gas coal, valued at £107,028, as against 23,340 tons, valued at £102,141 in March, 1949. This brings the total of these imports for the first three months of 1950 to 59,384 tons, valued at £288,748, compared with £54,731 tons, valued at £251,918, in the corresponding period of 1949.

Mr. **F. L. F. de Veye,** Chief Engineer of the Gemeente Energiebedryf of Amsterdam, the municipal undertaking which supplies gas and electricity to Amsterdam and its environs, visited the North Western Gas Board in Manchester last week for consultations about spirally guided gasholders. He was taken on a tour of inspection of the holders at the Stretford and Partington works by Mr. F. Litler, Deputy Chief Technical Planning and Technical Officer of the board, and Mr. John Wilson, General Manager of the Manchester group.

The North Eastern Gas Board was fined £20 at Todmorden for failing to fence a piece of machinery at Hebden Bridge gasworks in accordance with the factory regulations. It was stated to be the first summons issued against the board.

Royal Highland Show.—The Paisley undertaking, in the Renfrewshire Group of the Scottish Gas Board, provided gas services for this year's Royal Highland Show. Work began some four weeks before the show on the actual installation, and within the main showground a 700 yd., 8-in. dia. trunk main was installed, feeding about 1½ miles of lateral piping of various types. The work was carried through by a team of some 30 workers, of whom 12 were skilled gas men. Some 50 stallholders were given service, of whom 38 were caterers. The board was also an exhibitor at the show with a stand featuring gas services for domestic and agricultural uses.

Education and Training

Mr. G. R. Chetwynd, M.P. for Stockton-on-Tees, asked the Minister of Fuel and Power in the House of Commons recently whether he had agreed to a policy of education and training with the Gas Council as required in Section 4 of the Gas Act, 1948.

Mr. A. Robens, Parliamentary Secretary to the Ministry of Fuel and Power, replied that at the time when the industry was nationalised there were a large number of existing schemes for the training and education of employees, sponsored by the different gas undertakings. The first step in the preparation of a programme under Section 4 of the Act was the collection of detailed information about all these schemes. The Gas Council had undertaken this work, and was now in process of examining this information with a view to the preparation of a general scheme, or schemes, to be recommended for adoption throughout the industry. The Gas Council was not therefore yet in a position to submit a formal programme under Section 4 of the Gas Act.

Comfort in Old Age

The Lord Mayor of London (Alderman Sir Frederick Rowland, F.C.A.) laid the foundation stone of a block of flats at Vanbrugh Park, Blackheath, on June 6. These flats are designed for occupation by elderly people, and are built for the Sir John Morden's Endowment of which the Lord Mayor is a trustee. The picture shows the Lord Mayor examining an Electrolux built-in refrigerator in one of the four flats already completed. Similar refrigerators will be installed in the new flats.

Freedom of Choice

Fraserburgh Housing Committee recently considered a letter from the Hydro Electric Board regarding the provision of electricity supplies in a new housing area. The letter stated that if the council houses were wired only for lighting, with one or two heating plugs, the return on capital expenditure would be insufficient to make supplies to these houses pay their way. The Board requested, therefore, that the Town Council

should be asked either to make a contribution towards the mains and services to be installed by the board or to install, themselves, the necessary mains and services and then hand them over free of charge to the board.

The letter went on to state that if electric cookers and wash boilers were installed in the new scheme it would then be unnecessary for the Town Council to make any contribution towards the cost of mains and services under the first alternative.

The members of the committee after discussion came to the unanimous conclusion that this implied threat should be resisted, and that all tenants as before should be given a free choice of electricity or gas for cooking.

'Design for Living' Exhibit

Visitors to the Gas Council's exhibit, 'Gas in the Design for Living,' at the Building Centre, during May, included the Rehousing Director from the Norwegian Ministry of Reconstruction, Miss Held, who has the task of building and equipping houses in an area one-third the size of England, which was completely devastated during the war. Other visitors during May included many architects and builders.

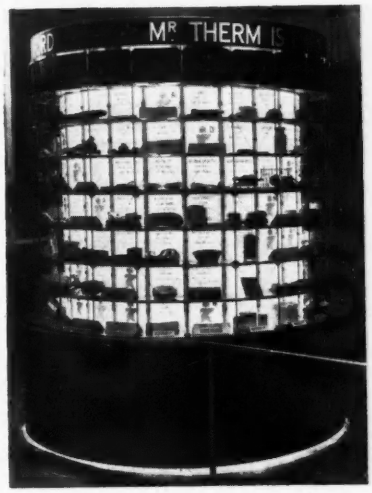
Parties who toured the exhibit included members of the Society of Building Technicians, and students from the Northern Polytechnic, Tottenham Technical College, and South London Technical College. The total number of individual visitors during the month was between 600 and 700, excluding organised parties, and enquiries about particular appliances reached the total of 761.

Gasholder Roundabout

The South Eastern Gas Board staged an interesting display at the Deptford Industrial Exhibition and Trades Fair recently held in South-East London. Divided into three sections, the stand was representative of 'By-Products,' 'Gas as Applied to Industry,' and 'Gas for Use in the Home.'

The principal feature was a revolving turn-table, shown below, designed and constructed for this exhibition by the Industrial Department. Taking the form of a gasholder 7 ft. high and 5 ft. 3 in. in diameter, it was illuminated internally and housed in its structure 157 small compartments for the display of miniature exhibits.

Local manufacturers using gas for production purposes were invited to supply these exhibits and by co-operating many of them found in this offer a valuable means of advertisement. The articles submitted were numerous, ranging from tiny iced cakes to model engineering accessories.

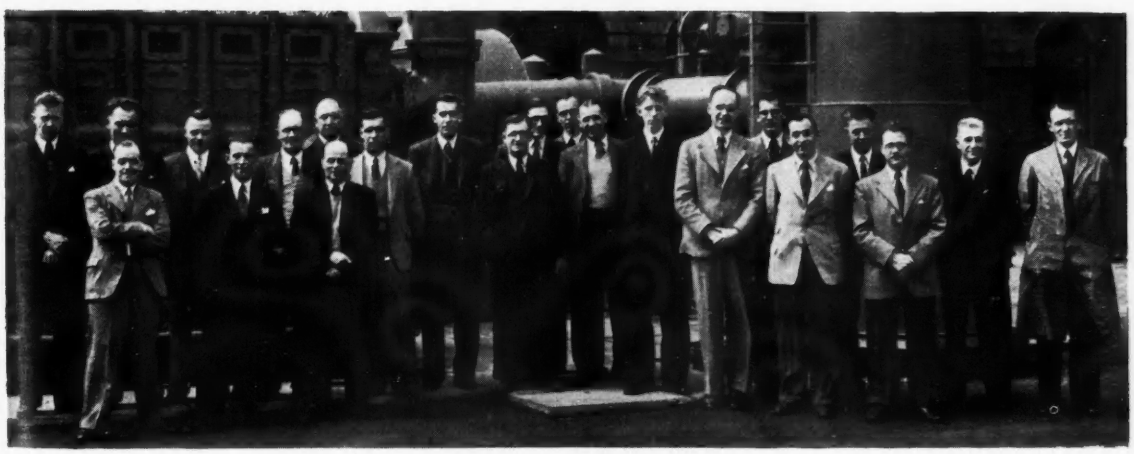


Pension Scheme Amended

The Minister of Fuel and Power has issued the Gas (Pension Scheme) Regulations, 1950, which amend the Gas (Pension Scheme) Regulations, 1949, so as to provide that in certain cases service as a whole-time member of an area board or the Gas Council may, for the purposes of a pension scheme maintained under those regulations, be treated as service in their employment. This is to be allowed where either the person concerned was subject to a scheme maintained under these regulations before becoming such a member, or (either as employee or member) he enjoyed pension rights preserved for him as against the board or council by the Gas Act, 1948, and regulations relating to pension rights made under Section 58 of that Act, and wishes to give up those rights and to join the scheme instead.

The regulations are given retrospective effect from the date on which the Gas (Pension Scheme) Regulations came into operation.

Scottish Juniors Visit Galashiels



Members of the Scottish Junior Gas Association (Eastern District), accompanied by their wives and friends, travelled to Galashiels for their annual outing on June 10. In the morning the members visited Galashiels gasworks, where they were shown round by the District Manager, Mr. William C. Campbell, and his assistants. The various extensions to plant and schemes of modernisation which are proceeding at present in the works aroused much interest. The ladies visited the premises of the Lochcarron Handloom Weaving Co., where demonstrations were given. Thereafter they visited the Scottish Woollen Technical College production unit at Netherdale. Afterwards in the afternoon, the party proceeded to St. Mary's Loch, where tea was taken prior to return to Galashiels by way of Innerleithen.

Distribution in the North Thames Area

Mr. H. J. Escreet Talks to Consultative Council

A MEETING of the North Thames Gas Consultative Council was held at St. Ermin's Hotel, Westminster, on May 25, Councillor Edwin Bayliss, J.P., Chairman, presiding.

An address was given by Mr. H. J. Escreet, Distributing Engineer of the North Thames Gas Board, who described the various systems of gas distribution in the board's area of supply and measures that had been taken since nationalisation and those projected to ensure supplies of gas at adequate and even pressures.

Mr. Escreet said that altogether in the board's area of 1,059 sq. miles there were now 8,500 miles of gas mains. The grid system within this area linked up 16 out of 22 distributing centres, 18 holder stations out of 27, and included about 100 underground governors. Total storage capacity amounted to some 165 mill. cu.ft., of which two-thirds was at the various works, the remainder, some 49 mill. cu.ft. being accounted for by outlying holder stations.

In his description of the board's distributing systems Mr. Escreet disclosed that in the South Essex area, which is supplied from a 4-in. main at high pressure, maximum capacity had almost been reached. A scheme was in hand for establishing additional storage at Radley with a new main from Beckton to supply the Canvey Island area. In the new town area at Basildon negotiations were in hand for installation of new pumping plant for grid supply; the remainder of the supply would be provided from Grays, Essex. Such developments indicated the difficulties inherent in planning for future developments in the less populated rural areas where many new housing estates and satellite towns were under construction.

Schemes in Hand

Development schemes which were in hand on May 1, 1949, totalled £1,033,000 for work on pump mains from the grid alone. Of this work, the largest scheme was that which would link Beckton and Southend; this was started three years ago.

Since nationalisation the board had approved schemes for improving and extending the distribution system at an estimated cost of over £2 mill. Included in this was the laying of more than 100 miles of mains to supply 18,786 new houses and 109 factories. The largest projects included the link-up of Stoke Newington to the Hornsey works at a cost of £114,000, which would be started in the next four or five months and completed in two years, and the establishment of holder stations at Dawley, Denham, and Cookham with a separate outlet main, automatic control, and a new main to Cookham, at a cost of £183,800.

Further attention was given to a recommendation which had been made to the board that a small handbill should be enclosed with all accounts sent out giving details of the District Committees of the council, and that a similar leaflet should be given out by hand by the board's collectors to prepayment meter consumers. The Secretary reported that the board had replied that the cost of printing such handbills for the 546,000 ordinary and 1,222,000 prepayment consumers would be £750 and the cost of their distribution would be £1,825. The board was of the opinion that periodic insertions of the information in the local newspapers would be more satisfactory. The council agreed with this suggestion.

Consideration was then given to the annual report of the council's work, to be submitted to the Minister of Fuel and Power. This was approved.

At the previous meeting of the council a resolution was passed that the board should be asked to approach the Minister to make representations for the removal of purchase tax on gas appliances, with particular emphasis on water heaters. The board had replied that in view of the fact that it had recently made a similar request it considered that the council's case would be strengthened if the council made a direct representation to the Minister of Fuel and Power. After discussion, a proposal that such a direct approach should be made by the council was carried.

A letter from the board was read expressing regret at the temporary failure of gas supply on Sunday, May 8, in the Amersham District. This was due in part to the exceptional coldness of the day and to the fact that one of the gasholders at High Wycombe was out of commission for repairs. The supply had been restored the same day.

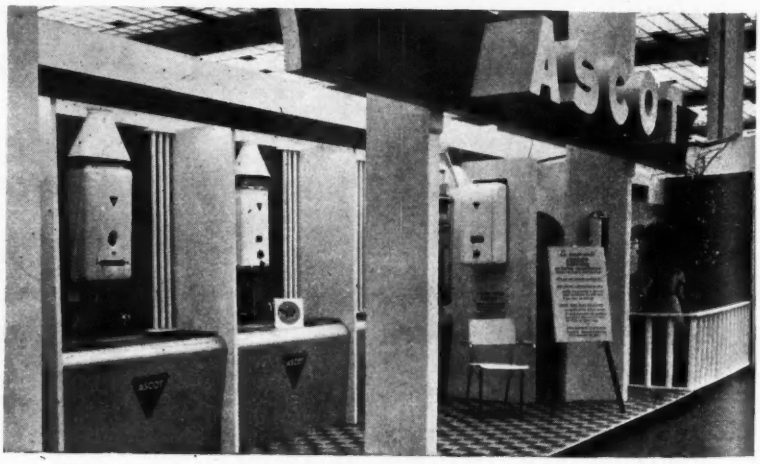
Report was also made on complaints which had been received by the council from various consumers, all of which had been settled satisfactorily.

The meeting finally received a report on satisfactory tests of gas for quality, purity, and pressure which had been made by the Ministry of Fuel and Power during the March quarter.

100 Years of Tar Distillation

The history of the earliest distillers of tar in this country is told in an attractive book published by Burt, Boulton & Haywood, Ltd., Brettenham House, Lancaster Place, London, W.C.2, to mark the Company's 100th anniversary. From its formation by Mr. H. P. Burt in 1848 mainly as an ancillary to provide oil for the impregnation of timber, the progress of the business was closely linked with the railway development which was so great a feature of the 19th century industrial development. The original partnership entered into by Mr. Burt with his nephew, Thomas Burt Haywood, and Mr. S. B. Boulton, continued until 1866 when Mr. Burt died. Since then, although the name of Burt was retained in the title of the Company, the business has been continued by the two families of Boulton and Haywood, the present Chairman being Mr. C. B. Haywood.

The growth of the Company in recent years is indicated in some measure by the steady increase of capital. Originally £25,000, it had grown to £255,000 in 1914 when it was increased to £305,000; by 1919 it was necessary to increase to £412,000; in 1922 to £500,000; in 1925 to £620,000; and in 1927 to £720,000. This last figure by no means represents the full trading resources of what is now a complex business which has timber and tar distillery interests with seven main branches in this country, together with many associated and subsidiary companies both at home and abroad.



This stand of Ascot Gas Water Heaters, Ltd., at the 24th International Fair held recently in Brussels, featured appliances designed especially for the overseas market to operate from both town gas and bottled gas. It was constructed in close collaboration with the Company's Belgian agent, Etabs. Guillaume Prist, 12-14, rue Marechal Gerard, Anvers, Belgium.

London Juniors' Record Session

Mr. T. V. Garrud Inducted as President

FURTHER alterations to the rules regarding qualification for membership and an increase in the annual subscription for Members, Associate Members, and Student Members were approved at the 48th Annual General Meeting of the London and Southern Junior Gas Association, held at the Edgware Road offices of the North Thames Gas Board on June 2 under the Presidency of Mr. A. H. Savill who, after delivering his Presidential Address, inducted Mr. T. V. Garrud as his successor.

Mr. **J. E. Gray,** Hon. Secretary, presented the annual report, which recorded a busy session of seven general meetings and a series of 10 visits and referred particularly to the introduction of a short paper meeting to enable members not having the time or facilities to prepare a full length technical communication to read a paper taking about 10 minutes to present. To encourage members to give these short papers the Council had decided to provide an annual 'President's Prize.'

The **President** mentioned that there had been a net increase of 17 in the membership of the Association, now standing at 642, in spite of an unusually large number of resignations resulting from nationalisation. In reply to a suggestion from a member, he promised that consideration would be given to the availability of advance copies of papers to those who specially desired them.

The Joint Council

Mr. **G. G. Warne,** Past-President of the Association and Chairman of the Executive Committee of the Joint Council of British Junior Gas Associations, reported that the Joint Council was a very active body representing Associations which now covered the whole of Great Britain. The Gas Council was responsible under the Gas Act for dealing with education, and the Joint Council felt that this was a matter on which it might have to take some action in the near future. The relations between the junior associations and the area boards were in many cases better than they had ever been, particularly in Scotland and Wales, where members were getting improved facilities for attending meetings. Commenting on the annual report of the Association, he felt there had been too many visits during the session.

The **President** replied that the visits had been arranged with the idea that they should offer alternatives; it was not intended that all the members should attend on every occasion, the numbers being strictly limited in most instances.

Mr. **Gray** added that from the point of view of variety of visits and actual numbers permitted the total had been no greater than in previous sessions.

Mr. **R. F. Twist** reported briefly on the work of the Southern District Education Committee which would remain in existence for at least another year.

Mr. **D. G. Winslow,** Hon. Treasurer, presented the statement of accounts, which showed a decrease of about £110 in the balance carried forward.

The usual donation of 10 guineas to the Benevolent Fund of the Institution of Gas Engineers was approved.

On the recommendation of the Council, the following officers for the 1950-51 session were elected: President, T. V. Garrud; Senior Vice-President, J. D. C. Woodall; Junior Vice-President, C. D. Shann; Hon. Treasurer, D. G. Winslow; Hon. Secretary, J. E. Gray; Assistant Secretary, E. P. Salmon; Hon. Transactions Secretary, W. F. Pritchard. There was no ballot for members of Council, the following eight nominees being appointed: A. Bell (Rochester), G. J. B. Cox (Tunbridge Wells), E. W. B. Dunning (London), E. J. Hoadley (Maidstone), W. Johnson (London), N. R. Junkison (London), J. B. McKean (London), J. A. Nichols (Lea Bridge). Mr. F. C. Smith and Mr. C. A. Deas were elected Auditors. Mr. G. Wilson Smith, who had been an Auditor for several years and had now resigned from the Association, was thanked for his services.

Hitherto the Association has been affiliated to the Southern Association of Gas Engineers and Managers, with representation on the Council of that Association. In view of the change in the constitution, under which the senior Association becomes two separate district sections of the Institution of Gas Engineers, the meeting agreed to the necessary alteration in the wording of the rules. Mr. **J. D. C. Woodall** assured members that the new constitution provided for the juniors to be represented on the councils of the new sections.

Membership Rule

After discussion, the rule regarding membership was amended to read: 'Applicants for Membership must be employed by a gas undertaking and have held for at least three years a technical or administrative position of such responsibility as makes him suitable in the opinion of the Council for membership; and must hold the Higher Grade Certificate of the Institution of Gas Engineers in Gas Engineering (Manufacture) or (Supply), or a qualification which, in the opinion of the Council, is at least equivalent.'

The rule referring to subscriptions was altered to provide that Members and Associate Members should pay 25s. per annum, Student Members 15s., and retired Members 10s. 6d.

Mr. Garrud, Mr. Woodall, Mr. Gray, and Mr. Twist were elected to serve on the District Education Committee.

The President presented the following awards for the past session: Milbourne Prize, F. E. Mills and F. C. Smith, for their paper on 'Carbon Monoxide'; Silver Medal of the Society of British Gas Industries, C. H. Purkis, for his paper on 'The Cost of a Domestic Hot Water Service by Gas'; President's Prize, L. J. Collins, for his short paper on 'The Use of Steam Ejectors as an Aid to Purification.'

On the proposition of Mr. **N. R. Junkison** a vote of thanks was accorded to the Technical Press, response being made by Mr. **A. C. Cross** (*Gas Journal*).

Mr. **Savill** then presented his Presidential Address, a summary of which will be published in a later issue of the *Journal*.

Mr. **Garrud** proposed a vote of thanks for what he described as a very informative, stimulating, and thought-provoking address, clearly written with that care which they had come to expect from the President of an Association of their size and importance.

Mr. **Woodall,** in seconding the vote of thanks, congratulated Mr. Savill on the brave way in which he had championed the cause of the Juniors. A lot of them had tried to say the same things in connection with the changes in the status of the Southern Association, but they had not been able to express them in the way he had done. The second part of his address bristled with problems and it was a pity that it was not open to discussion.

Mr. **Savill,** after briefly acknowledging the vote of thanks, inducted Mr. Garrud as his successor in the Presidential chair and wished him a successful year of office.

Mr. **Garrud,** returning thanks, recalled that it was 28 years since he first became an Associate Member of the Association. It would be his aim to maintain the high traditions of the office, and he was very glad that Mr. Gray had consented to continue in office as Hon. Secretary during his term of office. Finally, he invited members to submit, in writing, suggestions for papers and visits for the 1950-51 session.

Liverpool Lighting

In a report to Liverpool City Lighting Committee, the City Lighting Engineer, Mr. C. C. Smith, says that the task of restoring gas lighting has not proceeded as quickly as electric lighting for several reasons. The majority of the 15,000 gas lamps in commission in 1939 were, he points out, situated in the central part of the city and in the vicinity of the docks and received far greater damage than the electrical installations.

During the past year consumption amounted to 71,568,200 cu.ft., compared with 28,723,300 cu.ft. in 1948 and 179,796,300 cu.ft. in 1939.

The total charges for the respective years were £8,748, £3,123 and £21,635, representing an average price per therm of 6.54d., 5.8d. and 6.08d. Gas mantles used during the year numbered 33,870, giving an average of 4.1 per burner per annum. The heavy usage was due to the abnormal glass breakages in street lamps.

LIGHTING UP VERTICAL RETORT INSTALLATIONS*

By A. D. DUXBURY, M.Inst.Gas E., A.M.Inst.F.,
Deputy Engineer and Manager, Peterborough District, Cambridge Division, Eastern Gas Board.

The object of this paper is to present the major problems involved in the heating up of vertical retort installations. The general considerations are applicable to any type of installation, and the detailed schedules given are taken from actual works data obtained during the putting to work of Glover-West 50 in. and 33 in. installations. An attempt is made to point out the different treatment necessary in considering either a new installation or one in which major or minor resets have been made to individual settings. Bearing in mind the general shortage of gas-making plant at the present time, due consideration is given to the problem of lighting up individual settings, as they become available, instead of the more satisfactory method of bringing up a complete installation as one unit.

THE problems involved in preparing a vertical retort installation for gas-making are many, and, in the main, extremely complex. Each installation presents its own difficulties, known only to those intimately connected with it, and any suggested times or schedules can only be used as a general guide, and must, in every case, be interpreted in the light of the specific problems of each and every installation.

The present-day shortage of gas-making plant has led to further difficulties in that only individual settings can be let down for repairs, with the subsequent difficulty of putting back to work a cold setting lying between two working at normal carbonising temperatures. It is also quite common today to have to light up individual settings of a new, or reset installation, as they become ready, without waiting for the completion of the whole installation, and the subsequently easier task of bringing up that installation as one unit.

For the same reason, speed in bringing up a setting to gas-making conditions is, in many cases, of the utmost importance today. Many undertakings are able to allow only a minimum period of time, during the summer, for a reset to take place, and this necessitates keeping very strictly to a rigid time-table. The schedules and figures quoted later in this paper are considered to be the minimum compatible with the safe raising of heats in a setting, and have been proved, from experience, to be satisfactory where time is a factor of major importance.

Putting a retort installation to work is a technical problem calling for close and constant supervision by the technical staff of the undertaking if safety and satisfaction are to be ensured. Incorrect procedure, or lack of necessary technical control, may cause very serious damage to that part of the plant which is not only of the utmost importance but also most costly to repair or renew.

Behaviour of Refractory Materials

Heating up schedules depend largely upon the linear and volumetric expansion of refractories at various temperatures, and to a less extent on the thermal conductivity of the refractories used, and it is necessary, therefore, to consider the action of heat on these refractories, before passing to the more technical aspects of temperature control within a setting.

Silica is polymorphic—that is, it exists in three crystalline forms:— quartz, tridymite, and cristobalite, each modification being stable over a certain temperature range. (1).

Quartz is stable up to 870°C.

Tridymite is stable between 870°C. and 1,470°C.

Cristobalite is stable up to 1,710°C.

Generally speaking, changes between these modifications of silica are very sluggish in the pure state.

When quartz is heated above 870°C. it is slowly converted to cristobalite, which is unstable in this temperature range. Additional application of heat results in the further conversion of the cristobalite to tridymite, the stable phase. In addition to this polymorphism, each of these three modifications show polymorphic changes, which take place instantaneously on reaching certain critical temperatures and it is the changes brought about by these temperatures which require such careful watching in a heating up schedule and which may be responsible for causing serious damage to the setting if ignored.

(1) Quartz has two such modifications: the α form, existing below 575°C. and the β form above this temperature. This alteration is accompanied by a volumetric increase of 0.9%, and the coefficient of expansion, which is present up to the inversion point, becomes negative above this temperature (*i.e.*, β quartz contracts slightly with increasing temperatures).

(2) Cristobalite, again, has two modifications, α and β. Inversion here occurs between 200°C. and 275°C., and is accompanied by a volumetric increase of 2.8%. This large expansion occuring suddenly as the temperature rises through the inversion point can set up extremely large stresses in refractory materials containing an appreciable amount of cristobalite.

(3) Tridymite exists in three forms: α, β_1, and β_2. α inverts to β_1, at 117°C. with volumetric expansion of 0.14%. β_1 inverts to β_2 at 163°C. with volumetric expansion of 0.2%.

As will be seen from these figures, neither of the expansions here is sufficient to cause structural damage unless the rate of temperature increase is very high.

From a consideration of the above figures it will be seen that heating up schedules must be conducted with extreme caution. First, the jointing material must be dried out slowly, thereby preventing the formation of cracks in the cement. Secondly, the rate of temperature rise must be kept in the range of the α — β inversion—*i.e.*, 100°C. to 600°C. When the whole of the structure is above 600°C., the rate of temperature rise per unit time can be much increased, as the coefficient of thermal expansion is very low, and there is, therefore, very little risk of large uncontrollable stresses being set up.

Basic Principles

(A) Different types of repairs, and their specific conditions.

A leading authority states that the rebuilding of retort installations is usual every 10-20 years, and during this overall working life, two or more repairs have to be carried out to certain parts of the brickwork, particularly retorts (2). The ease with which these repairs can be carried out depends largely upon the size of the undertaking and the layout of the carbonising plant.

On a small works it is often extremely difficult to spare even one unit for repair, and this repair has to be carried out while its neighbours are gas-making. In these circumstances, new silica bricks expand as they are being laid, with a good chance of early after-breakage. On such a works one unit may represent as much as 25% of the whole manufacturing capacity. Wherever possible, plant capacity should be such that semi-isolated units can always be made available. In the case of larger works, these may consist of six retorts or even up to whole benches (3).

Repair and renewal work normally carried out on the re-

* Paper to the Eastern Junior Gas Asscciation, April 22, 1950.

fractory work of a retort installation falls into four classes:—

(1) Complete rebuild, including front and end walls.

(2) Reset of retorts and combustion chambers within the limits of existing front and end walls.

(3) Letting down for patching and minor repair work only.

(4) Hot repair work (which is not within the scope of this paper).

The time required to bring the installation back to gas-making temperatures varies with each of these classes, although the principles involved are identical in each case.

The process of heating up any retort setting may be divided into different periods, and it is the length and number of these periods which alter, according to the type of repair that has been carried out. The various periods of the drying out process are shown below:—

(1) Preliminary heating by brazier only.

(2) Further drying, with average combustion chamber temperatures up to 110°C. and fire up to two bars high.

(3) Primary heating period, with temperatures up to 300°C.-350°C. and fire building up to within two bars of the top.

(4) Final heating and building up to gaseous firing at about 550°C.-600°C.

(5) Soaking period after gaseous firing to bring the settings up to carbonising temperatures.

The approximate duration of each of these periods, under the three different types of repair, is shown below, and it must be emphasised that the lower times given are absolute minima and that the higher times should be used wherever possible.

TABLE I.

	Complete reset	Reset in existing walls	Patching
Period (1)	7- 9 days	5- 7 days	5- 7 days
Period (2)	7- 9 days	5- 7 days	
Period (3)	9-11 days	9-11 days	9-11 days
Period (4)	5- 7 days	5- 7 days	5- 7 days
Period (5)	4- 5 days	4- 5 days	4- 5 days
Totals	32-41 days	28-37 days	23-30 days

From a study of these schedules it will be seen that it is in the preliminary heating periods that most time must be allowed in the cases of partial and complete resets. This is because in these cases a far greater mass of brickwork has to be dried out. This operation requires a long period of time, during the early stages, for the heat to penetrate evenly, so that the whole mass is at relatively the same temperature during the passage through this critical zone.

When every precaution has been taken to ensure dry storage of the refractories before they are built into the setting, the completed brickwork, and, more particularly, its jointing material contain large quantities of moisture which must be driven off during the drying stage. The division walls in particular require a much greater expenditure of fuel and time, to drive off the considerable amount of moisture which they contain. (4).

A further problem arises when a setting has to be brought up next to one already at work, or when situated between two such settings. In these cases it is usual for the brickwork nearest the hot settings to acquire a relatively high temperature before any heat is applied directly to the setting. When this is so it is essential to make the fullest possible use of the main producer gas dampers in an endeavour to bring up the cold brickwork to the same temperature as the outer brickwork adjacent to the hot settings before increasing the temperature of the part already heated. Thus it is often necessary to keep the producer gas dampers practically closed on those retorts nearest the heat for the first 10 to 14 days of the heating-up schedule, to allow the other portions of the setting to attain the same temperature. It is not possible to lay down any rule-of-thumb procedure for this levelling-out of temperature through a setting, but the damper openings shown below have been found from experience to be necessary when heating up 50 in. and 33 in. Glover-West settings situated alongside a working setting. The temperatures at the 'hot' end averaged 100°C. before any direct heat was applied, and periods of from 10 to 14 days elapsed before all dampers could be opened fully.

TABLE II.

Hot End.		Cold End.
50 in. INSTALLATION		
6 5 Cracked only + 2 in.	4 Half open	3 2 1 Full open the rest
33 in. INSTALLATION		
4 Cracked only	3 Half open	2 1 Full open the rest

(B) Different types of setting and their peculiarities.

Three distinct types of setting may be encountered, and each has its own peculiarities.

(1) The standard upward or downward heated setting with producer gas uptakes situated on one side only and heated by individual producers, or by a number of producers, working on a common producer gas main.

(2) The balanced heated (Glover-West), or lambent heated (Woodall-Duckham) setting, where the heating gases are introduced at both sides of the setting. In this case the producer gas may be supplied either by producers situated on each side of the setting, working on a common producer gas main or by producers situated on one side only supplying producer gas to the non-producer side by means of a cross-over flue.

(3) Settings where the producer gas is supplied by mechanical producers either built in, or external to the setting. This latter case produces an entirely different set of circumstances and is not dealt with in this paper.

Case (1) is dealt with in more detail at a later stage in the paper, and the general principles governing case (2) are given below, with particular reference to a Glover-West balanced heating setting.

The general procedure for drying out and heating up the old design of settings, with producer uptakes on one side only, applies equally to the balanced heating setting, especially in relation to the building-up of fires in the producers over the agreed period for drying out and to the necessity for maintaining those fires to give a constant steady increase in heat (5).

In the balanced heating setting the waste gas uptakes are in the centre and the heating gases are introduced at both sides of the setting. It is therefore essential to regulate the flow of gases to the combustion chamber inlets at both sides of the setting so that the heat is evenly distributed throughout and the rise in temperature on both sides is the same. In settings provided with a producer gas cross-over flue it is necessary to force an adequate volume of the heating gases through this flue from the producer to the non-producer side of the setting. This is effected by checking the dampers at the base of the producer side uptakes while leaving those on the non-producer side full open. The isolating dampers for the cross-over flues are left fully opened throughout heating and normal operations. Care must be taken, in attaining suitable temperatures in the non-producer gas uptakes, not to overheat the brickwork of the common producer gas flue or the producer gas necks.

It may become necessary to heat up a single setting in an installation, and, as the common producer gas flue is already feeding producer gas to other settings, the method of heating by a slow fire cannot be followed. Heat must now be supplied to the setting by the combustion of producer gas drawn from the common flue. A system of coal gas pilot lights is necessary, ½-in. connections being provided opposite each uptake damper box. Each is fitted with a control cock, and a ½-in. pipe is laid on the top of the uptake damper some 2 in. behind the inside edge of the damper, which is completely sealed. Temporary connections, with flexible tube, are necessary to reach the cross-flue damper through the access plug and lid to this damper.

(C) General considerations.

It is essential that during the whole stage of drying out and heating up the setting should be kept under pressure to force

the hot gases into all parts of the setting and maintain even temperatures throughout.

A gradual and steady rise in temperature must be ensured, and as the greater part of this process takes place below 'visible heat' the necessity for definite control is obvious. Before beginning, a time-table should be made, and this should be rigidly adhered to throughout the period. Temperatures should be taken at regular intervals at the top of the producer gas uptakes, in the bottom combustion chambers, and at the outlets of the waste gases. These should be recorded and graphed on a suitable chart. (6).

The great point to be emphasised throughout the whole of this operation is that the setting should be heated up evenly and equally throughout its mass. The fires at every stage must be fed with the utmost regularity throughout the whole 24 hr., so that, at no time, shall the temperature be allowed to fall after it has once risen. (7).

Major Considerations

To produce the above-mentioned results satisfactorily requires a consideration of many different factors. It would be too lengthy a procedure to list all these considerations, but a few of the more important ones are discussed briefly below.

(1) Producer Fires.

It is most important during the early stages that the producer fires should be fed with very small amounts of coke at intervals of not more than one hour. Coke should be fed to each half of the fire alternately, so that the products of combustion are of an even quantity and temperature. It is most important to supervise the attention given to the fires, particularly at the change-over between shifts and throughout the period of the night shift. There is a common tendency to ignore the correct procedure during the night (when technical supervision may not be available), with the result that temperatures may drop and then suddenly increase again with the more rigorous attention given when the morning shift comes on duty. This is most injurious to the setting, and the use of a 24 hr. thread recorder in one of the combustion chambers will help the technical staff to keep a check on this point. Another common failing is to allow the fire to build up at the back of the producer so that the total effect is far greater than that required. Firemen should be instructed to keep the fire level from front to back and must start to built up only when told to do so by the technical staff. To assist this procedure it is usual to remove the firebar above the one to which the men are working and to arrange a temporary water supply so that the lower bars are kept fully cooled. When the fire becomes big enough, normal cleaning should be instituted, but it is advantageous to clean only half the fire each shift—*i.e.*, the left half on the morning shift, the right half on the afternoon shift, &c. This procedure will help to maintain the steady supply of evenly heated producer gas to the setting. Finally, where a number of settings are being brought up together, involving several producers, it has been the author's experience that the provision of an extra fireman to deal only with these producers will amply repay the extra expenditure. If these fires are left to the ordinary fireman there is an obvious tendency on his part to work-in the 'slow fires' with his ordinary cleaning schedule, and this often results in unintentional neglect at a most important time.

(2) Instrumentation.

It is advisable to use as many thermometers as can reasonably be provided. This will obviously depend upon the number of settings involved, but there is no doubt that the more temperatures that can be taken the more perfect will be the control over the heating schedule. Thermometers (O°C. to 350°C., gas filled) should be inserted in $\frac{3}{8}$-in. tubes, approximately 6 ft. in length. The tubes should be suitably slotted near one end to expose the thermometer scale. Thermometers should be held in position in the slotted end of the tube by a packing of asbestos string.

When the temperatures rise above the normal thermometer scale thermo-couples may be substituted, but it is recommended that where high temperature thermometers can be made available these are infinitely easier to read and far less likely to give rise to difficulties.

It has already been stated that the provision of a 24 hr. thread recorder, operating in one of the central combustion chambers, is invaluable. This enables the technical staff to have a true picture of what is happening over the entire heating up period, and it is remarkable how the picture thus presented varies from the one obtained from the daily readings of thermometers only. In the case of larger undertakings where a number of settings may be involved annually, careful consideration may be given to the purchasing of a multi-point recorder with up to 8 or 12 points. This may appear to be a costly piece of apparatus but it will be of the greatest use in helping to control the heating up of a larger installation.

(3) Records.

The importance of preparing an initial time-table for each setting has already been stressed, and this becomes of even greater importance where a number of settings are involved which may not necessarily be keeping to the same time-table. It is advisable to institute a system of record forms for each setting, on which all daily occurrences may be recorded. These forms will vary with the type of installation, and the repair being carried out. It is also advisable to produce a graph for each setting, showing the ideal heating-up curve, and also the various critical temperature ranges of the heating up schedule. The average daily temperatures taken at one or more points should be graphed against the ideal curve and every effort should be made to follow this curve as closely as possible.

(4) Expansions.

Vertical expansion measurements should be taken to give the daily and total vertical expansion which occurs up to the date of gas-making. It is advisable to continue to take expansion readings for some weeks after gas-making has commenced, as it is likely that further expansion will be recorded. It is customary to measure these vertical expansions at the top of the setting, and usually the top mouthpieces and the main coal bunkers are used as datum points.

Bench steelwork should also be watched for horizontal expansion, and the compression of the expansion spaces noted. Most modern settings are provided with spring controlled bracing, and this requires constant watching, as the heats are raised, if correct support of the bench is to be maintained (8). It is possible that when inadequate allowance has been made for expansion in the horizontal plane stresses may be set up, of a magnitude equal to the crushing strength of the material (9).

Total vertical expansion may be of the order of 3 to 3½ in. and horizontal expansion 1 to 1½ in., the diminution in this case being largely due to the lack of loading effect on the horizontal mass (10).

It is reasonable to assume that up to 300°C., 60-65% of the total expansion takes place and that at 575°C. (the inversion point of α quartz to β quartz) the greater part of the remaining expansion occurs.

Typical Heating Up Schedule

(A) Preliminary work required.—There is a certain amount of preliminary work required before reaching the definite heating stage, and this work is common to any type of repair. Part is carried out before lighting the brazier; the rest is done between the lighting of the brazier and the change-over to a two-bar fire.

(1) State of ironwork.—All top and bottom ironwork should be completed before a brazier is lighted. Under conditions of extreme urgency, certain jobs, such as bottom mouthpieces, may be completed after the brazier is lighted, but in all cases it is essential to be able to seal retorts, top and bottom, when the two-bar fire stage is reached. Blanks may have to be fitted temporarily to the bottom castings if for any reason the mouthpieces are not available. It is most necessary to prevent cold air induction taking place in the retort as the heats begin to rise.

At this stage it is advisable to carry out a check on ironwork

fittings, &c. Coal and gas valves should be tested for freedom of movement, scurfing doors tested and repacked where necessary, plugs fitted in coal bins and top castings, and poking balls and their seatings checked over and tested for tightness. Coke discharge doors should be tested similarly and repacked where necessary. Steam and water fittings should be installed and tested and the whole of the bottom castings checked over to make sure that nuts, bolts, and plugs are not missing. A little time spent at this stage will be amply repaid later when the time comes to start gas-making.

All cleaning out of hydraulic mains, &c., should be completed before the two-bar fire stage, to prevent men working in a polluted atmosphere.

(2) Conditions of setting (before lighting brazier).

(a) Nostril plugs should be placed in position, and where patching only has been carried out care should be taken to see that there is a clear way into each combustion chamber from the nostril end and that the producer gas will be able to circulate freely.

(b) Air slides should be open, and bricks in the end of the air flues removed. Main secondary air ports should be uncovered.

(c) Top control dampers and chimney dampers (where fitted) should be closed and sanded.

Methods of Heat Balance

(3) Condition of setting (after brazier lighted).

(a) Main producer gas uptake dampers should be opened fully, with the exception of those nearest the 'hot end,' where settings are being brought up one at a time.

(b) If the date on which the brazier is lighted is called for convenience B day, then:—

B+1 All sight plugs on producer gas side should be put in and clayed up.

B+2 Top rows of sight plugs should be put in on non-producer gas side.

B+3 Middle rows should be put in on non-producer gas side.

B+5 Bottom rows should be put in on non-producer gas side.

It is next necessary to balance the heating of the setting evenly between top and bottom rows so that the whole of the brickwork shall expand at the same temperature. The following methods were proved successful, with slight alterations in the case of 50 in. and 33 in. settings.

50 in. SETTINGS.

Thermometers are placed in the second and eighth rows on the non-producer gas side. The hot gases are allowed to escape from a space equal to three bricks removed from this space according to requirements. If the outward flow of gases is too great at this level and the bottom half of the setting is not getting enough heat it may be necessary to restrict the top escape hole and to remove the bottom row of sight plugs on the non-producer gas side to help balance out the heat. These plugs can be put back at a later stage when the setting is heated throughout and the temperatures are beginning to rise.

33 in. SETTINGS.

Again with thermometers in tops and bottom rows on the non-producer gas side, balance the heating by removing the plugs from these two rows. It may be necessary, again, to restrict the flow from the top plugs by using specially prepared plugs with holes in, or nostril plugs shaped to fit, in order to reduce the size of the orifices, until a good heat balance is obtained between the top and bottom half of the setting.

(c) Before carrying out this heat balance on B+5 days, air slides should be closed, bricks inserted in the end of the air flues, and main secondary air ports closed and sealed. This short preliminary period with the slides open will help to drive out the dampness from the air passages.

(d) The setting is now ready for the intensive heating period, but before changing over to a two-bar fire the lid of the producer should be raised very slightly and rested on a metal crosspiece designed to fit the opening in the producer top. This is a safeguard against the possible explosion of gases which may collect in a pocket at the top of the producer if a slight draught is not present to keep the whole area swept clear. There might thus be a 'blowback' at a time when the fireman is working on the producer.

(B) Heating up setting to gaseous firing.

Temperatures should now be brought up in accordance with the ideal curve on the graph previously described. It has been found from experience that two ranges of temperatures are generally sufficient for this purpose. One set is taken in the second row combustion chambers and the other is set in the sixth row. Obviously this is a matter of choice and convenience, and personal experience will dictate the positioning of the thermometers. Extra firebars are added as necessary to maintain a steady rise in temperature of some 8°C. to 10°C. per day. Here again the main essential is to to avoid any falling-off of temperatures, and some daily progress must be maintained, however slight this progress may be in the case of the longest heating-up schedule. The main producer gas uptake dampers will have to be adjusted throughout this period to maintain an even temperature across the setting, and no rule-of-thumb schedule can be laid down.

About the time the fire is raised to the fourth bar it will usually be necessary to crack the main control dampers and chimney dampers (wherever fitted) to prevent undue pollution of the atmosphere in the neighbourhood of the setting. Here, again prevailing conditions will dictate the procedure to be adopted. At the same time, all plugs and bricks, &c., that have been used for the egress of the hot damp gases are replaced and clayed up so that the top control damper takes over its rightful task.

During this latter period of building-up to gaseous firing the producers should be cleaned carefully and built-up until the fire is level with the second grate plate from the top. The normal water system for the grate plates must now be prepared, ready for the final charging up of the producer. It is important during this stage to avoid excessive heating at the curtain wall arch in the producer or at the base of the producer gas uptakes.

Final Preparations

(C) Gaseous firing.

If the setting has been brought up correctly the temperature should be about 600°C. by the date scheduled for gaseous firing. The nostril blocks should be showing red by this time, and in the middle and lower combustion chambers at least a definite reddish heat haze should be starting to spread from the nostril end along the length of the combustion chamber. The producer fire is now thoroughly cleaned, and then charged by hand until the curtain arch is almost covered. The top bar is now put into position and the water supply turned over to the normal method. Meanwhile the air control slides to the individual combustion chambers are loosened and opened about 1½ in.

The top control dampers should be opened 2 in. to 3 in., if this has not already been done in the course of the previous few days. The producer should now be charged with good clean graded coke, and the producer lid placed on and sealed with sand.

The main secondary air port bricks are now removed, and the chambers should begin to light up immediately. If any combustion chamber is too cold, a blue flame may appear which looks as if producer gas is burning correctly. It is generally not complete combustion, however, and producer gas and air may be going forward unburnt, leading ultimately to an explosion (11). After lighting up, the quantity of air admitted must be a minimum to produce slow, lazy combustion.

The main producer gas and control dampers are now checked back to prevent too sudden an increase in temperature during this final soaking period. The temperatures should be allowed to come up gradually to normal carbonising heats

(*Continued at foot of p. 964*)

PETROLEUM REFINING

IN his address to the North Western Fuel Luncheon Club this month, Dr. Franz Kird, Managing Director of Petrochemicals, Ltd., outlined the history and outlook of the petroleum refining industry. The story of crude oil dates back to 1859 It took till 1900 to reach an annual production of 20 mill. tons, and to 1908 to reach 40 mill. tons per annum, but by 1925 this had risen to 150, and by 1950 to just under 500 mill. tons a year. In 1900 half the world production was in Russia with 42% in America, but by 1925 America was leading with 71%, with Russia at 5%. Today, the world crude oil production of 460 mill. tons is distributed between 54% North America, 20% Central America, 15% Middle East, 7% Russia, and 4% other sources. While coal production has doubled since 1900, oil production has increased tenfold; and if the calorific potential of oil is reckoned at 1.7 times that of coal, the equivalent oil production today is 55% that of coal.

In the initial stages of the refining industry the main product was kerosene (paraffin). Forming 75% of production in 1880, it fell to 6% in 1948, but the absolute amount of kerosene produced rose from 2½ mill. tons in 1880 to 30 mill. in 1948. The petroleum industry was slow to adopt fractionisation. At the end of last century vacuum distillation became possible, and so important was it that one of the biggest oil companies today is the Vacuum Oil Company. The distillation of the higher fractions producing lubricating oils became the second important product. This has remained of great importance ever since, but while you can today produce fuels of all kinds synthetically, lubricating oil must still be produced from the crude petroleum.

The big development was that of gasoline (petrol), the demand for which grew enormously with the fabulous development of the motor car. In 1930 we had the following position. You could, within wide limits, adjust the proportion of gasoline to fuel oil to suit the changes of the market. You could, through solvent extraction, make suitable gasoline from any fuel oil, and you could also make high-class lubricating oils which hitherto were only made from selected crude oil. For the first time in history the refiner could adjust his production to follow the market.

By 1930, too, it became feasible to consider the construction of refineries near the centres of consumption, a much more steady location than that of the oilfield which may shift or cease production. It is a great pity that this development, by no means yet completed, did not begin in Britain until 1945, discouraged by the Pelham Report of 1937, showing what enormous damage can be done by Government interference in so fast-moving an industry. The demand for aviation spirit beginning just before the last war meant a completely new step in synthesis and it led to the 'petro-chemical finish.' But more and more of the lubricants were derived, not by distillation, but by separation from the crude petroleum; it became clear that crude oil would also serve as the raw material for other chemical processes. In the manufacture, for instance, of synthetic rubber many chemicals will be produced from petroleum in the future, although the total value of these chemicals is a very small proportion of the total production from crude oil.

Turning to the future and comparing coal with oil, the great economy in storage space for the latter would favour its continued use by shipping. In North Europe generally, where coal is produced plentifully, oil will only be used where it offers definite advantages, but coal is constantly rising in price and this is not likely to decrease. But in countries where coal is not indigenous the shift is towards oil. In Switzerland, for instance, the value of coal imported is this year for the first time about equal. The price of oil, though still relatively high, is approximately equal to what it was 15 to 20 years ago. The reason for this steadiness is the very large crude oil production arising in the Middle East. Here production cost is relatively low and a substantial reduction in oil prices is a definite possibility.

The petroleum industry, then, has successfully mastered the conversion of the heavy hydrocarbons, securing a balance between the production of fuel oil and gasoline, but the development and expansion of the use of the diesel engine presents a problem for the future. We cannot by any economical process increase the yield of the medium fraction to meet the demand for this fuel. Another problem equally wide is that of gas turbine fuel and jet fuel. There is little doubt that in the immediate future the construction of gas turbines for power stations, locomotives, and aeroplanes, perhaps also for ships, will increase. The gas turbine on land can use gas oil; but when you come to flying at high altitudes a hydrocarbon with a sufficiently high flash-point is required. The present gas turbine fuel is the fraction between 180° and 270° C. and every demand in this fraction will further increase the insufficiency of the supply of gas oil.

Dr. Kind emphasised the contribution made by the petroleum industry to the arts of peace as well as to those of war. We should not, he said, underestimate the tremendous impetus which it has given to the development of chemical and other branches of engineering throughout the world. Something like £715 mill. per year is invested in petroleum, so that it may be claimed that if the industry has contributed to the horrors of war it has done something to repair the damage.

LIGHTING-UP VERTICAL RETORT INSTALLATIONS — continued from p. 963.

during the course of the next four or five days.

(D) After gaseous firing.

During this phase, manipulation centres on the main control dampers (12). The draught on the outlet side of these dampers is adjusted to 0.2 in. to 0.3 in. W.G., by adjustment on the chimney or waste heat boiler.

Control damper openings are now increased, to give a pressure of 0.1 in. W.G. in the bottom combustion chamber. Chimney pull must be increased similarly to maintain the same equilibrium. Adequate time should be allowed between each series of manipulations to allow conditions in the setting to become stabilised. During this stage normal operating conditions should be achieved. Ideally a pressure should be maintained on the circulating chambers, level gauge at the 5th and 6th row, and a vacuum not exceeding 0.1 in. W.G. in the bottom combustion chamber. During this final soaking period, a last check should be carried out on ironwork and services. Hydraulic mains should be sealed, and liquor services, sprays, and valves finally checked.

When the temperatures have risen to carbonising heat, the retorts should be 'Airborne' sealed. The setting is now ready for gas-making.

It is recommended that the following method be employed, when charging the retorts (13).

Fill the retorts with good class graded coke, with the extractors working very slowly. When full, two metal rods should be inserted into the charge to a depth of about 5 ft. Extractors should then be stopped, and turned by hand while the rods are watched to see that the coke fall is even all round. This is to prevent a run through when the retort is charged with coal. After a little time the extractors may be started very slowly, with a little steam to the retort. Finally, the retort may be charged with coal, and gas-making commenced in the normal manner.

One authority recommends that in the case of a new setting, heats should be maintained below 1,300°C., for the first six months to prevent sudden changes taking place in the refractories due to their quartz content.

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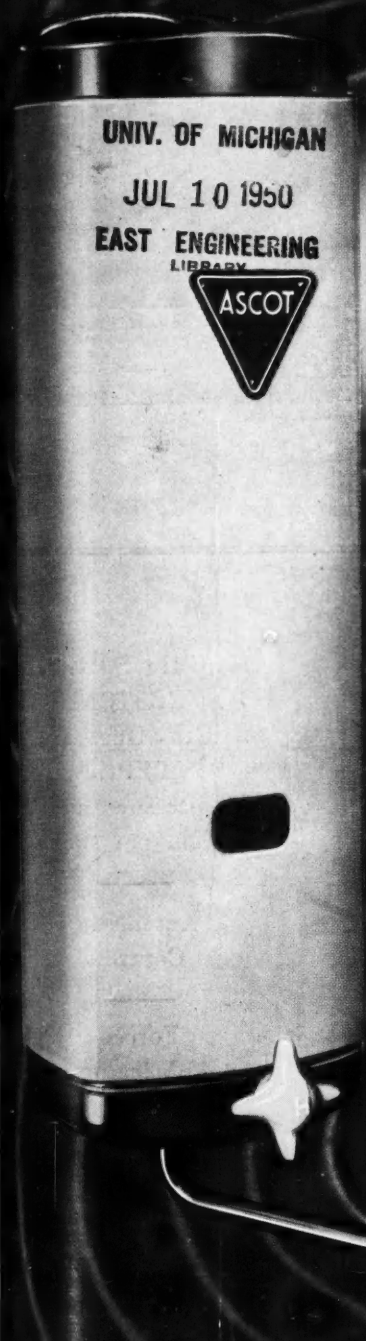

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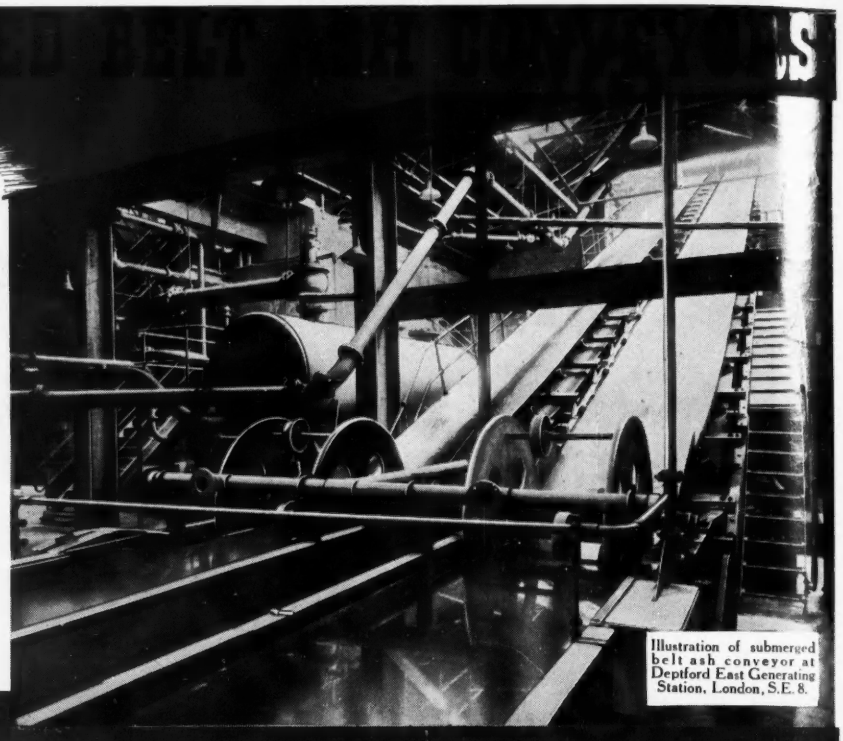

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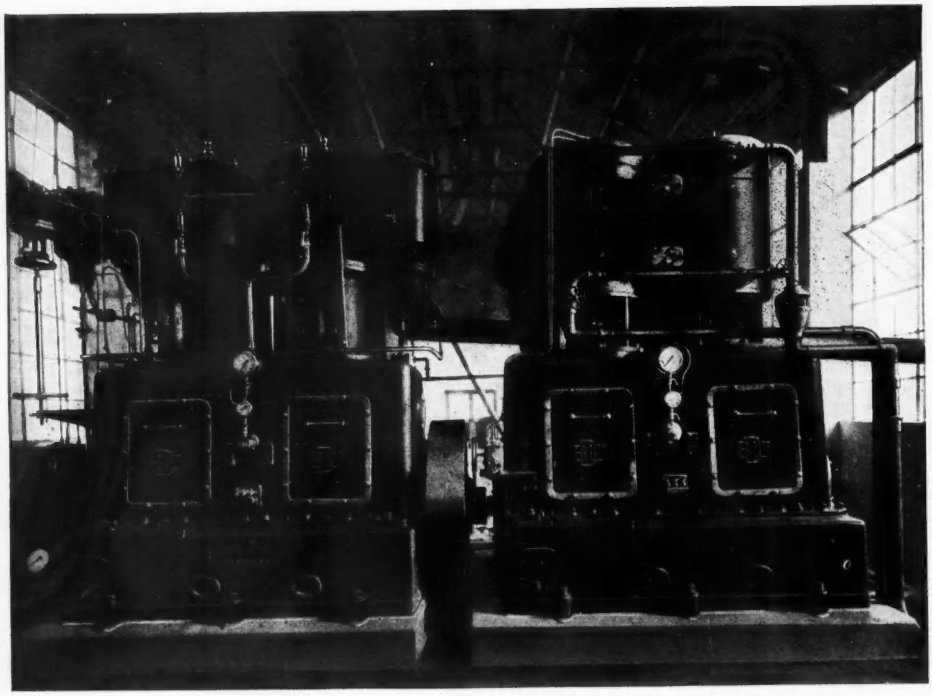

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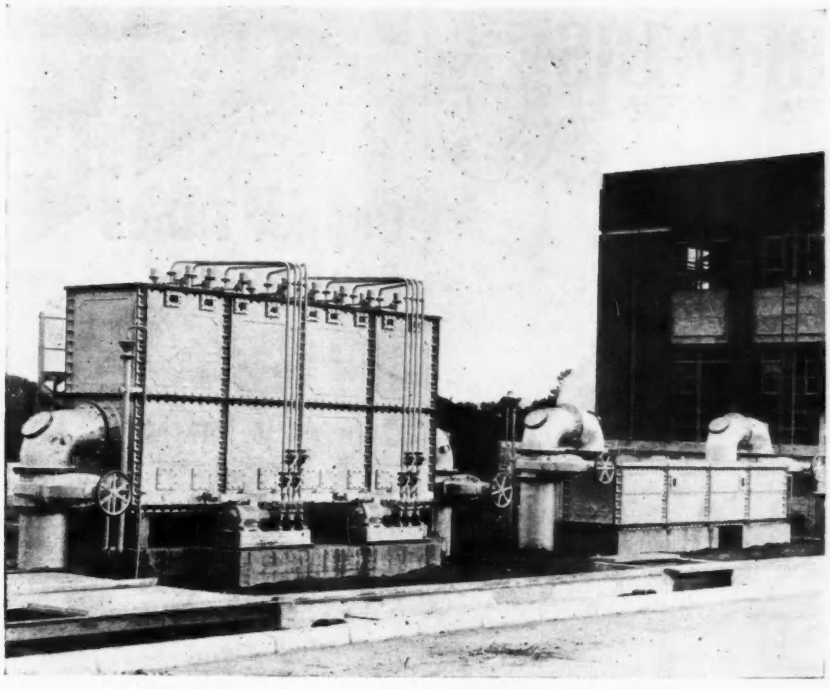

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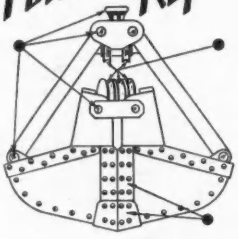

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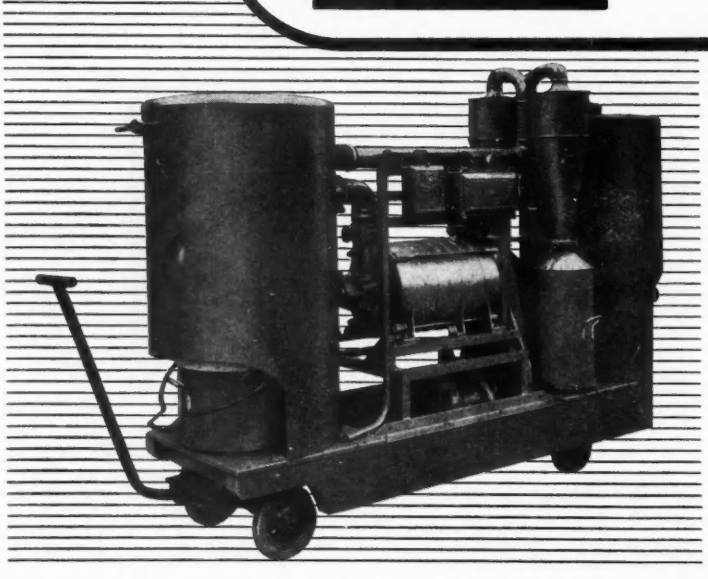
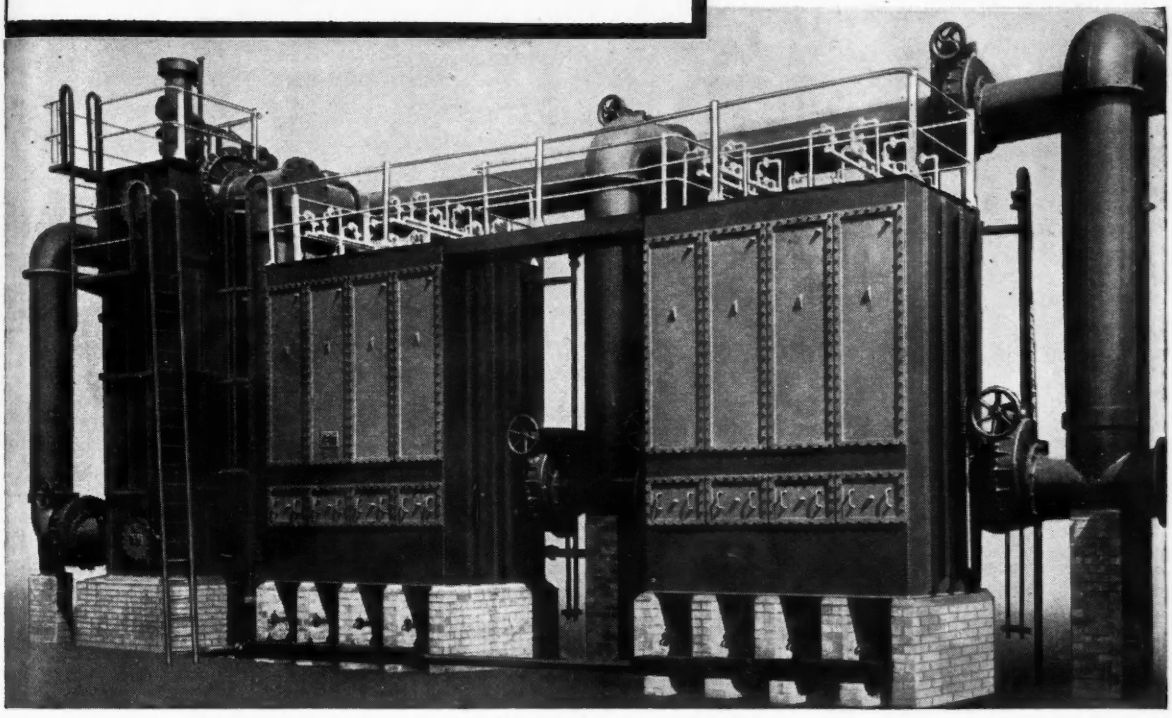


The B.V.C. Dual-Purpose Gas Works Model T87 is a very efficient mobile unit. with water-cooled container for the removal of hot dust from the tops of retorts. Can be used for general cleaning by either one or two operators. We shall be pleased to send you full information on request.

B.V.C. FLUE DUST REMOVAL PLANT used by: North Thames Gas Board (Beckton, Nine Elms, Southall, Brentford, and Stepney). West Midlands Gas Board (Birmingham). Wales Gas Board (Cardiff). North Western Gas Board (Birkenhead), Southern Gas Board (Reading), etc. etc. *For full particulars apply to Dept.* 63.

The British Vacuum Cleaner & Engineering Co., Ltd., Goblin Works, Leatherhead, Surrey *'Phone :* **Ashtead 866**

Wet Purification by WHESSOE



The photograph shows the neat arrangement of a W.W–D. Electro-detarrer and a Whessoe Multi-stage Static Ammonia Scrubber, with capacities of 4 million cu. ft. of gas per day, installed at the Darlington Works of the Northern Gas Board.

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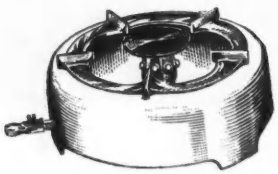
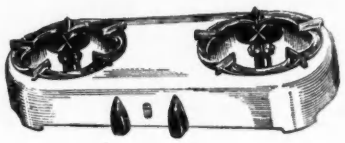
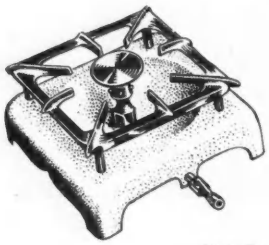


Hotplate FA/1

These handsomely styled appliances incorporate one or two rings respectively. The main structure is pressed steel, vitreous enamelled in grey or cream, with a light alloy pan support ring which is removable to facilitate cleaning.
These models are specially designed for domestic use, and are particularly suitable for dwellers in flats and bed-sitting rooms.

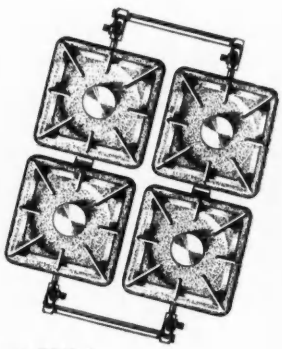


Hotplate FA/2



Unit Burner FA/4

This square type has the advantage that units can be added to make up two, three, four or more burner cookers by using a simple coupling with independent tap controls. It is sturdily constructed and will stand up to hard and continuous use. Quickly dismantled and easily cleaned, this unit burner is invaluable in the house and in canteens, hotels, restaurants, clubs or any place where hot foods and drinks are required quickly and in quantity. The standard finish is grey mottled vitreous enamel.



Unit Burners FA/4/4

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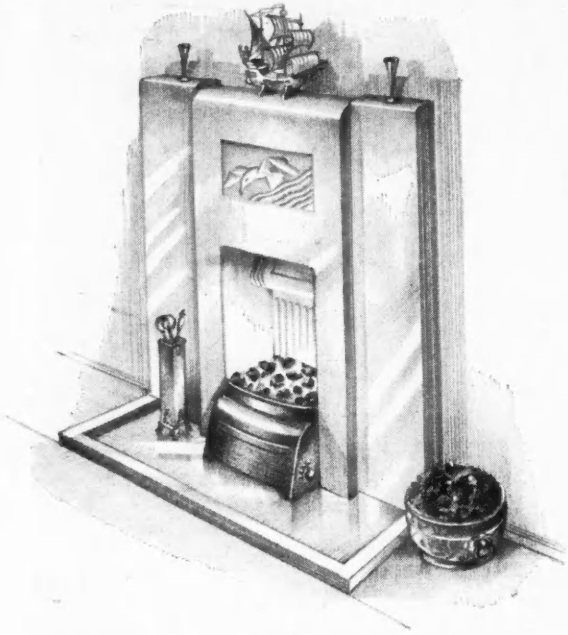

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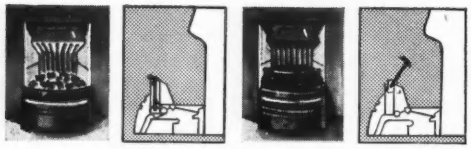

By raising a plate, normally concealed behind the fire front, the capacity of the grate is increased sufficiently to maintain a slow burning fire throughout the night.

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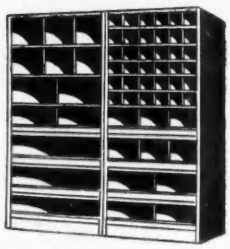

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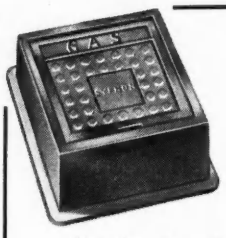

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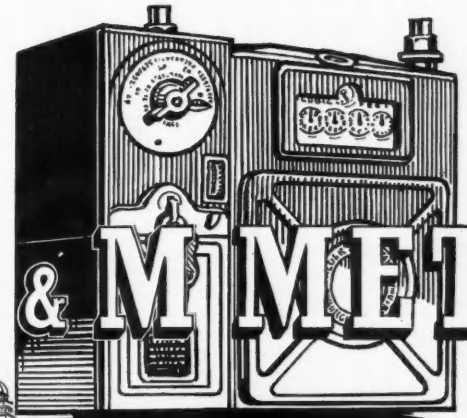

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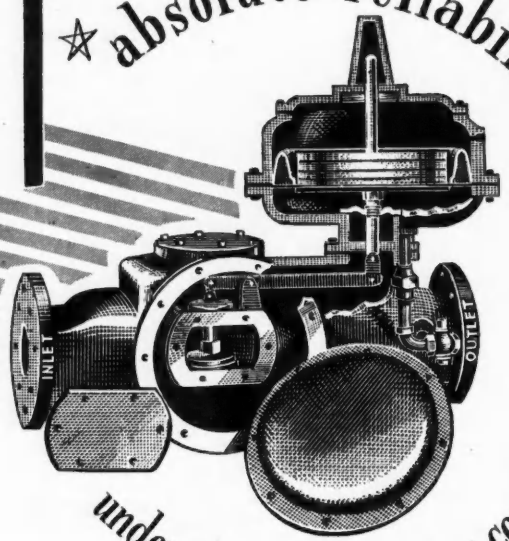

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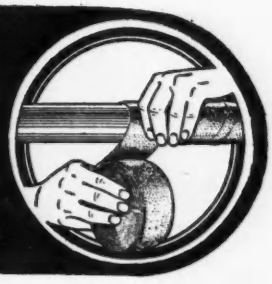

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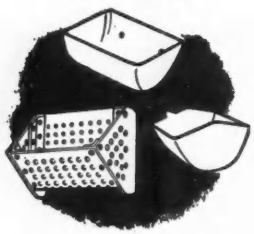

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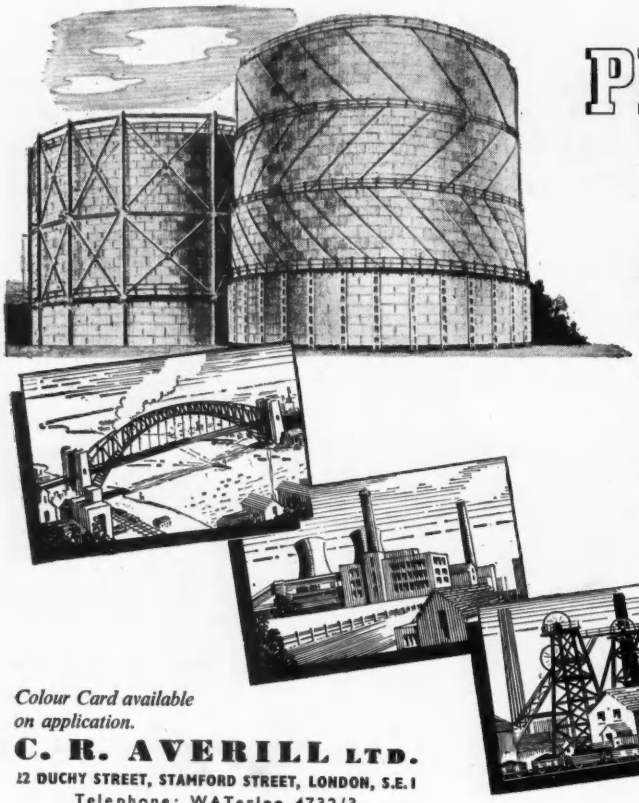

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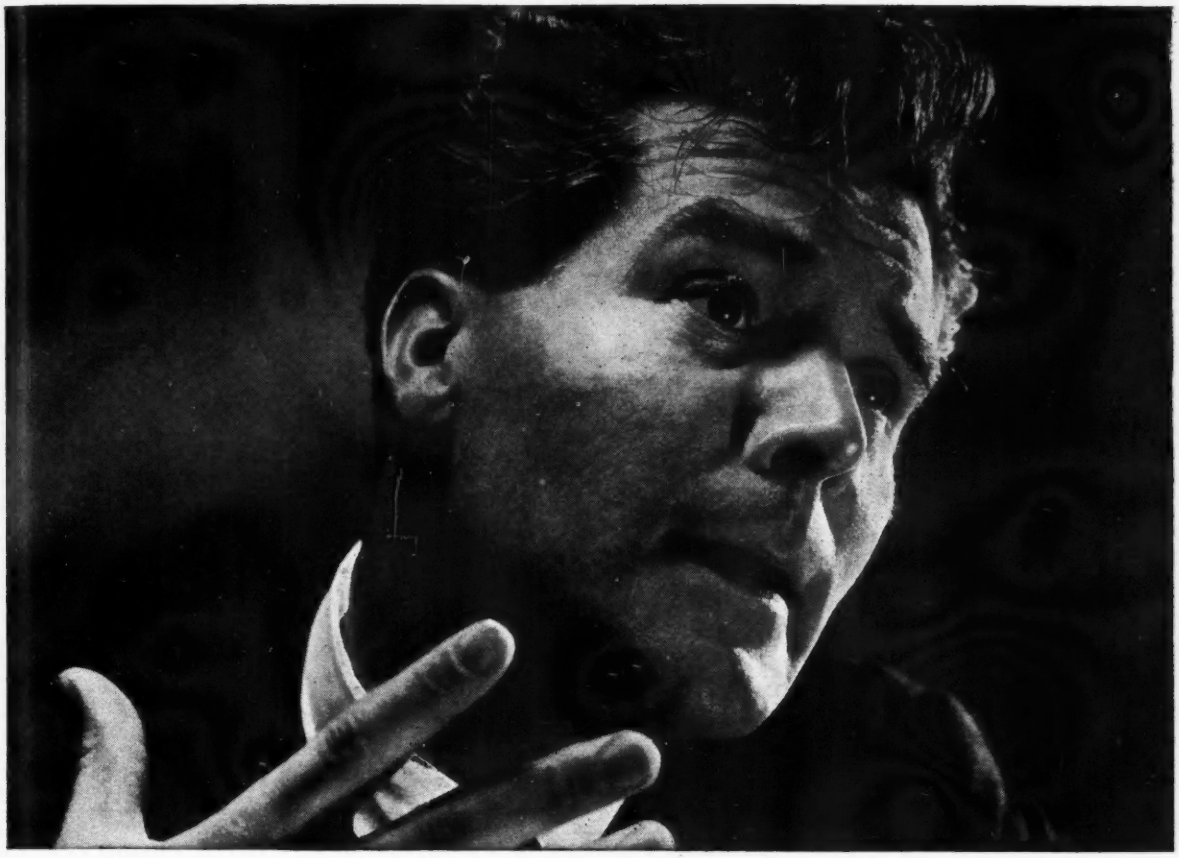

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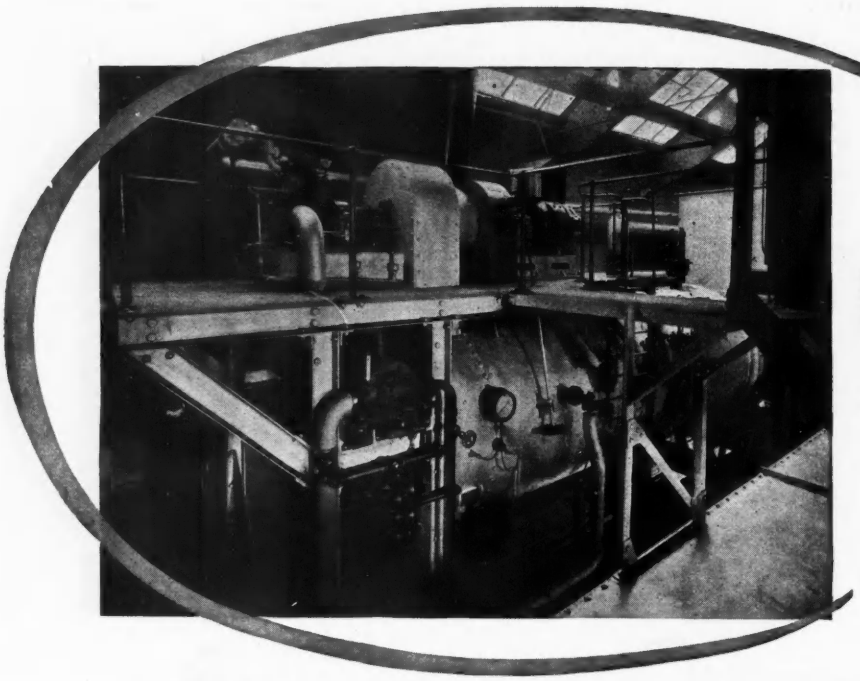

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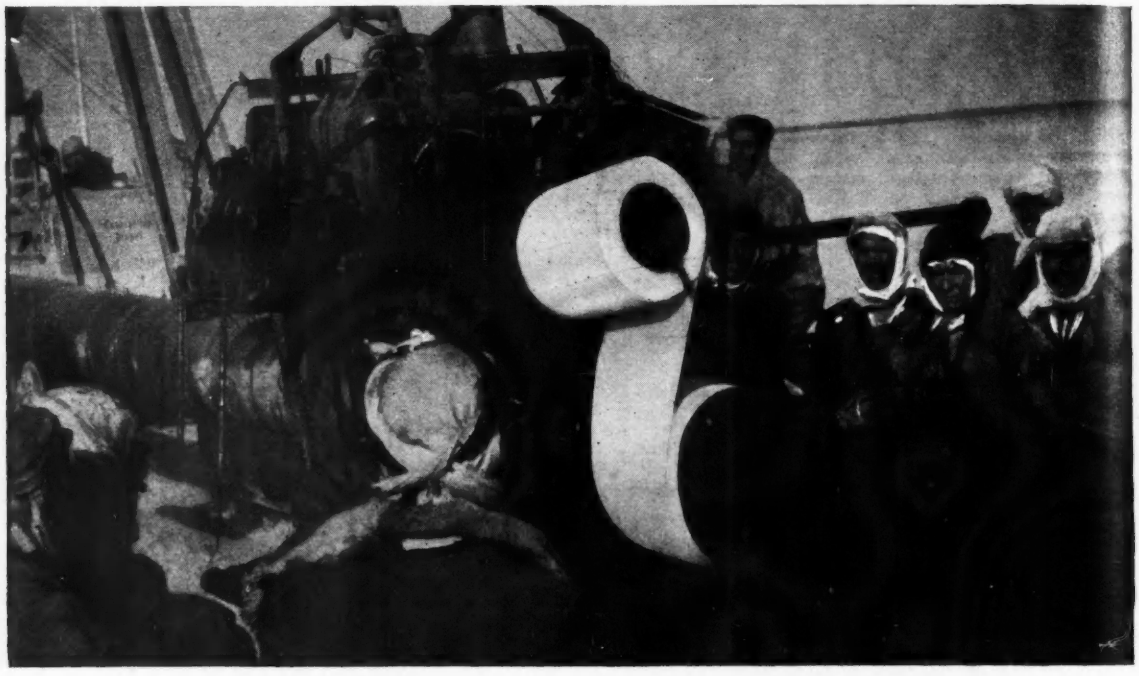

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In 'Fibreglass' Staple Tissue the fibres are bonded to form a thin, pliable tissue with special advantages in pipe wrapping.

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It is rotproof, fireproof, acid resisting; is unaffected by bacteria, fungoid growths, organic solvents and soil acids; and has the high electrical resistance which is very important in pipe wrapping.
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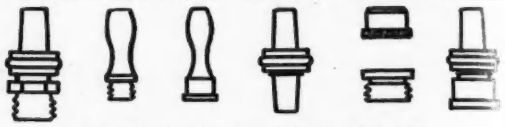

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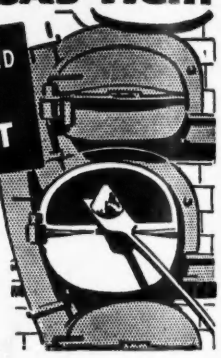

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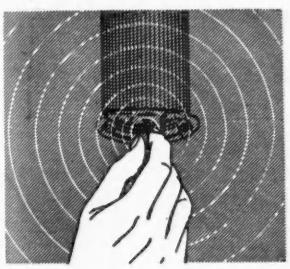

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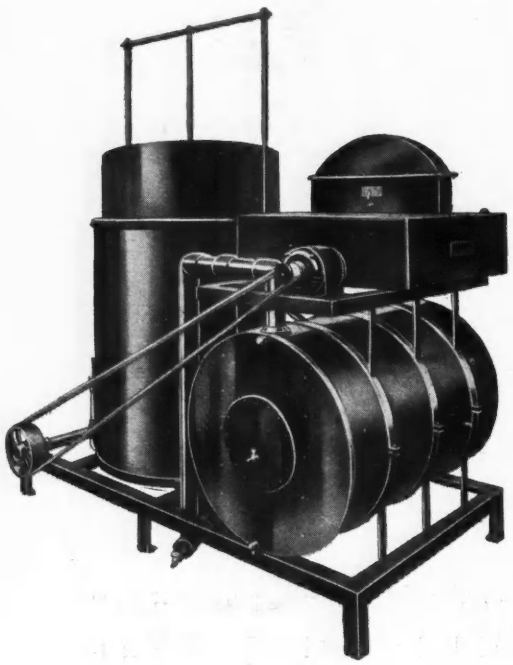

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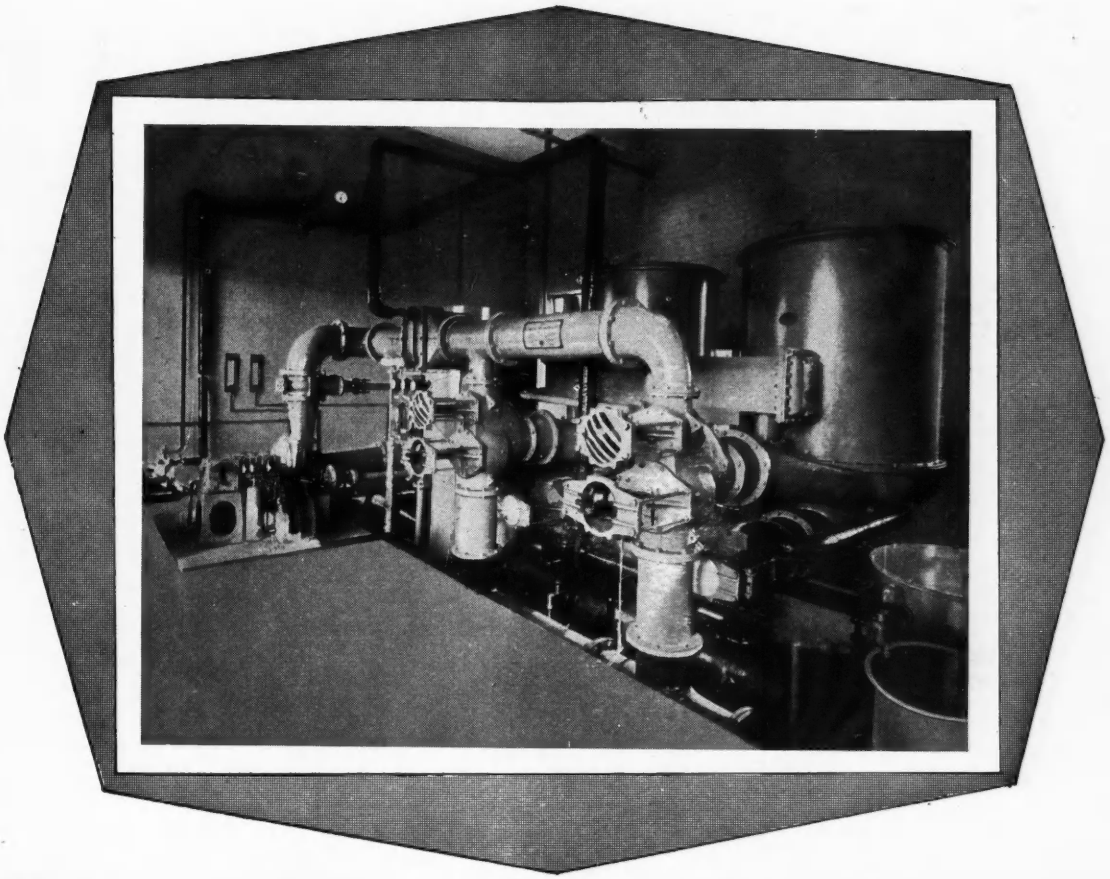

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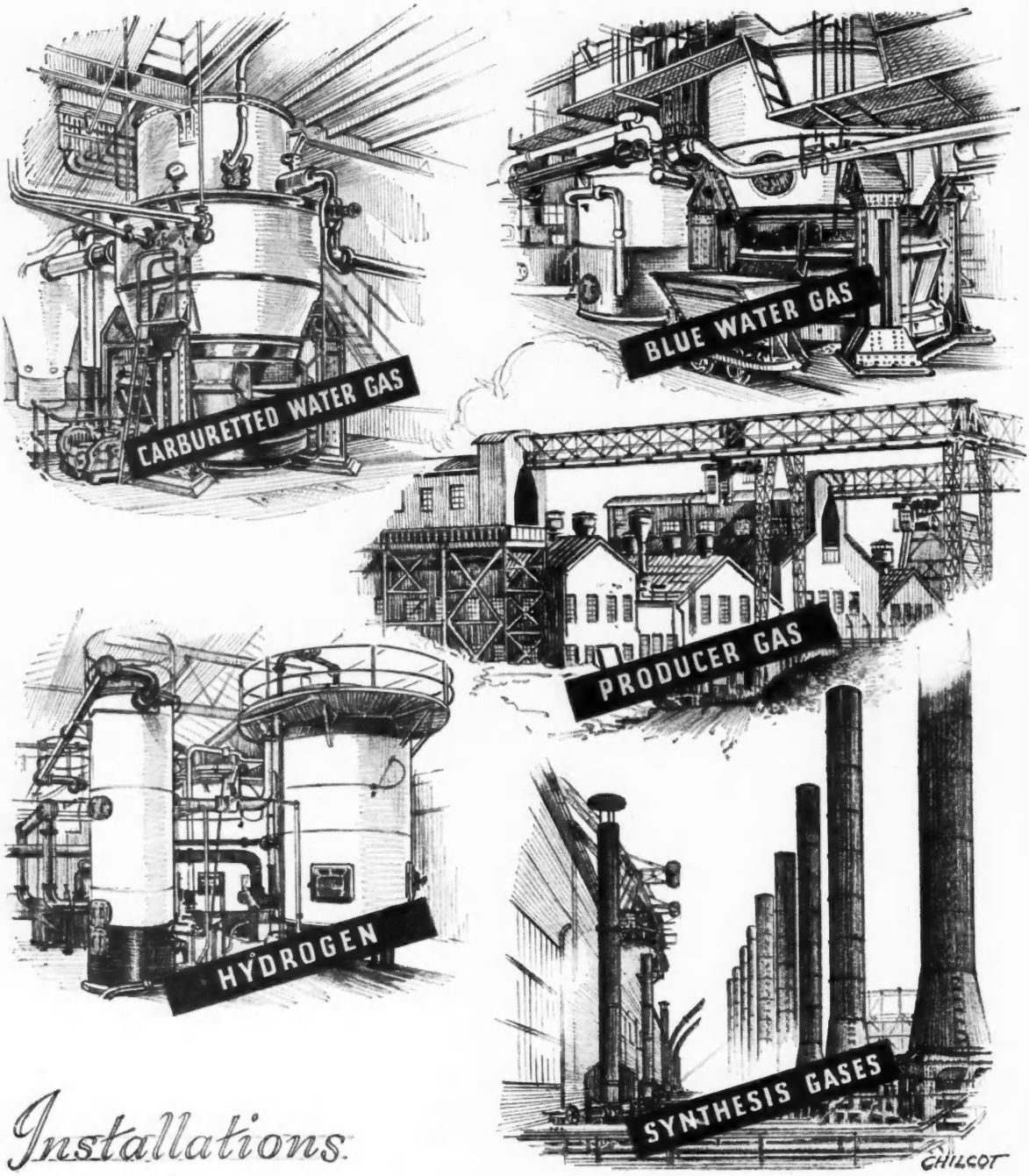

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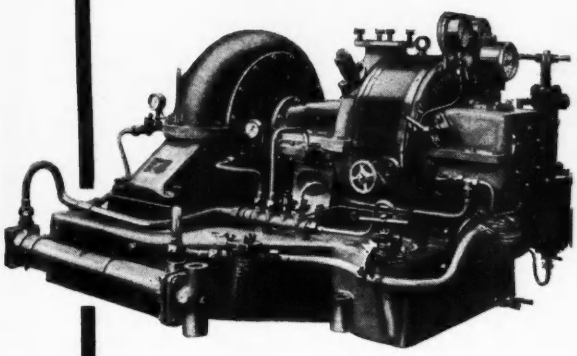

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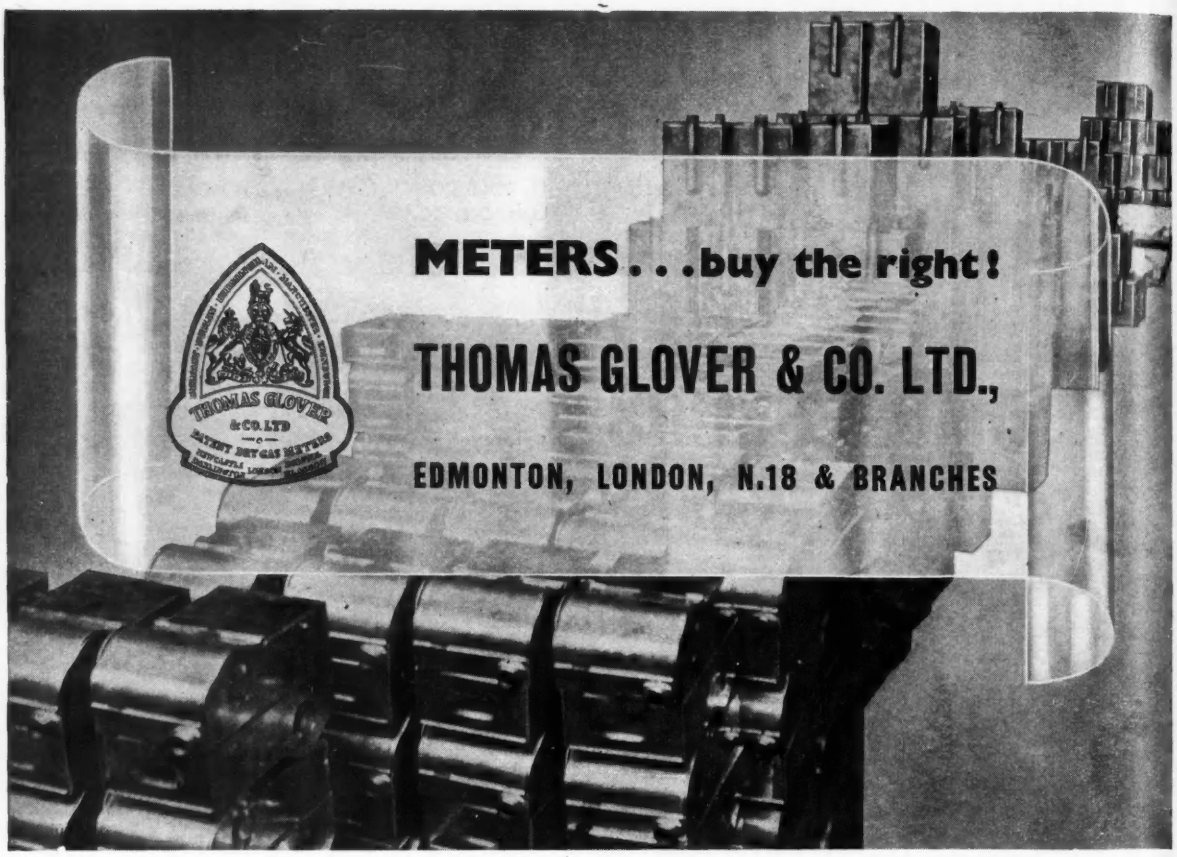

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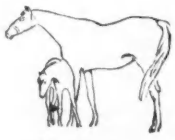

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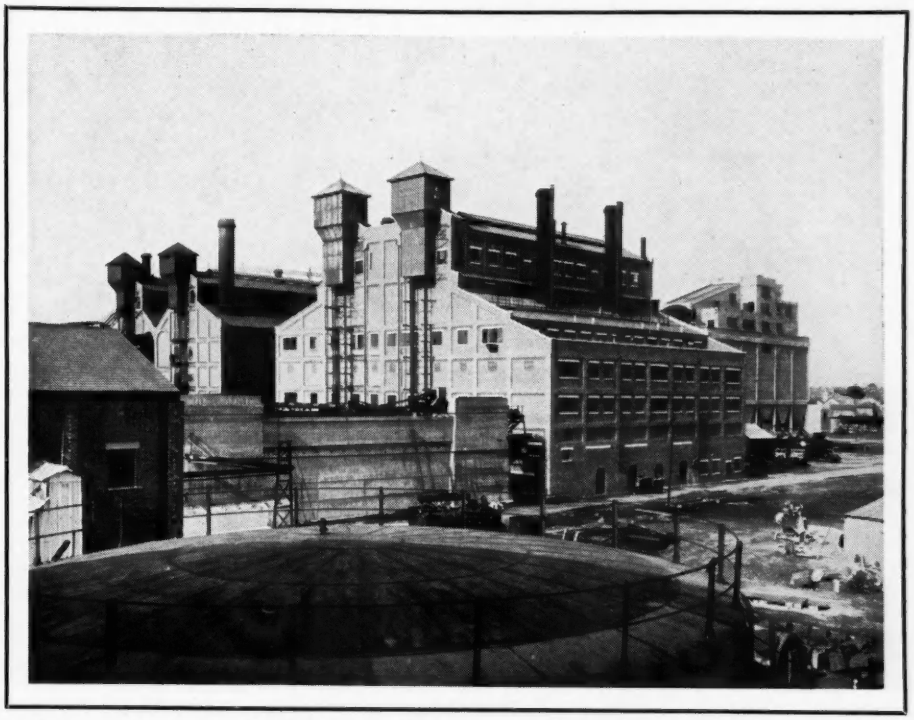

The Four Continuous Vertical Retort Houses at the Pitwines Works of the Bournemouth Undertaking of the Southern Gas Board.

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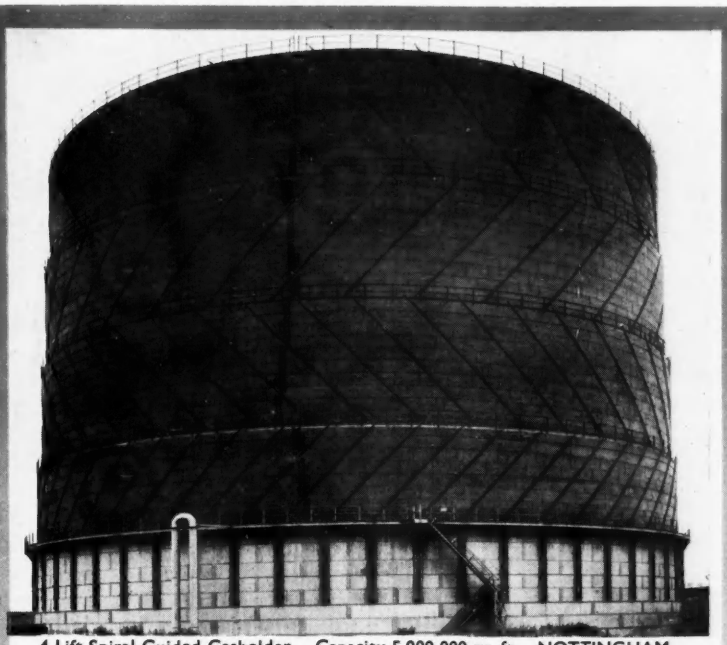
Here is the latest Gas-Fired Incinerator produced by Sugg to take care of disposal problems quickly, safely, and *hygienically*. This new design (Model No. 3706), attractively finished in white enamel, is backed by 20 years' experience in the manufacture of 'personal' incinerators. The action of opening the incinerator door lights the burner. After burning for the pre-set period—between 3 and 120 minutes—the gas is *automatically* turned off, reducing fuel consumption to the minimum. A wall model (No. 3705) of similar design is also available, for use in small or narrow rooms where extra floor space is needed. An ever-increasing number of Hospitals, Nursing Homes, Factories, Business Houses, Stores and Schools are being equipped with Sugg Gas-Fired Incinerators.



4 Lift Spiral Guided Gasholder. Capacity 5,000,000 cu. ft. NOTTINGHAM

GASHOLDERS

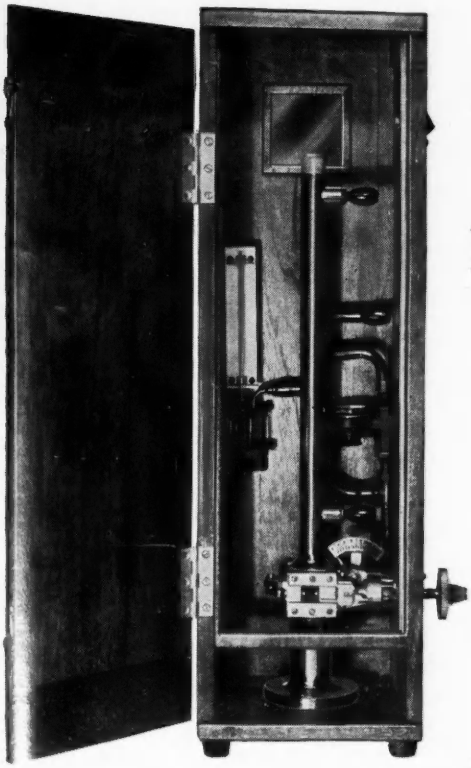
GUIDE FRAMED
SPIRAL
WATERLESS
HIGH PRESSURE
REPAIRS AND
INSPECTION

80 Years Experience

UNEQUALLED SERVICE

GASHOLDERS & TANKS
OF ANY SIZE AND DESIGN
RIVETTED OR WELDED.

CLAYTON SON & CO., LTD.
HUNSLET, LEEDS, 10.



Aeration Test Burner

by

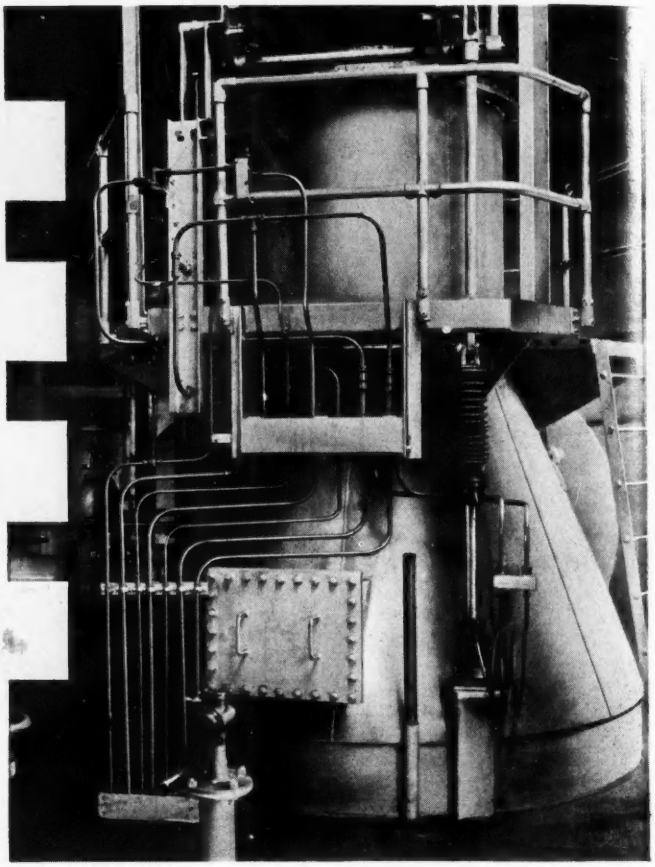
Nash and Thompson LIMITED

who have extensive and well-equipped laboratories and workshops and a highly qualified staff of chemists, physicists and engineers. This organisation is available both for consultation and research on problems of applied science and will design and manufacture specialised instruments, of which the accompanying photograph shows an example.

NASH AND THOMPSON LIMITED · Oakcroft Road Tolworth Surrey

CONSULTANTS · GAS, ELECTRICAL AND MECHANICAL ENGINEERS · SCIENTIFIC INSTRUMENT MAKERS

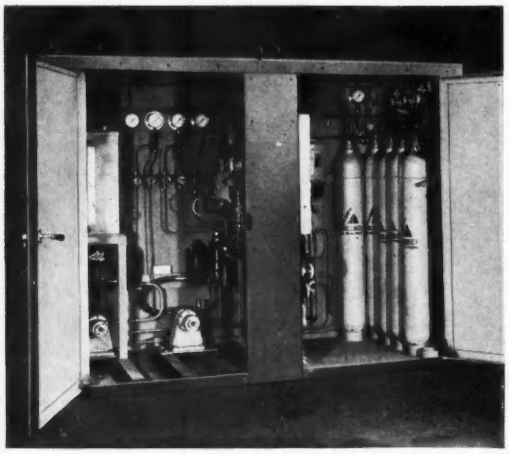
Actuating stack valve of C.W. gas plant



More and more manufacturers of gas plant are following the lead set by the larger concerns in the incorporation of Lockheed industrial hydraulic equipment in their products, and the advantages are becoming more widely recognised by operators.

These photographs show, above, the stack valve of a P.G. carburetted water gas plant and below, the Lockheed power cabinet, which was originally developed to meet the Power-Gas Corporation's specification.

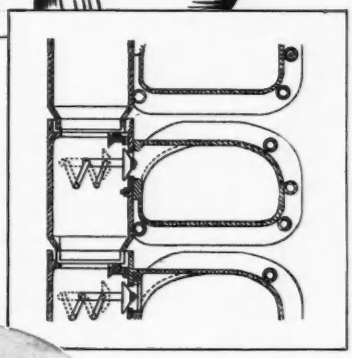
Lockheed hydraulic equipment for the industry includes sequence controllers and hydraulic operation for gas retorts, and also for valves: for the remote control of dampers: for the manual and servo controls for chargers, etc., and for rotary grate drives for producers and carburetted water gas plant.



AUTOMOTIVE PRODUCTS COMPANY LTD., LEAMINGTON SPA

Lockheed
REGD. TRADE MARK
INDUSTRIAL
HYDRAULICS

4 Essentials in an efficient

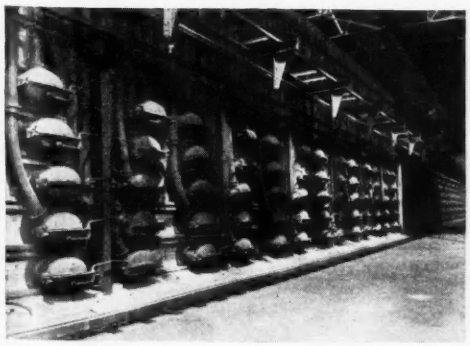


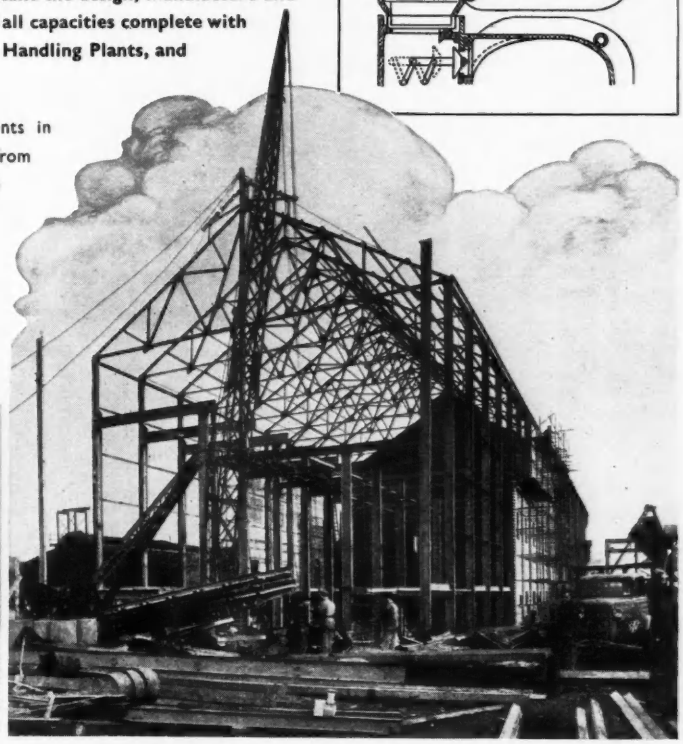
● MODERN DESIGN ● DETAILS TO LATEST PRACTICE
● EXPERT CONSTRUCTION ● TROUBLE-FREE OPERATION

DEMPSTERS OF ELLAND undertake the design, manufacture and erection of Horizontal Carbonizing Plants of all capacities complete with Retort Houses, Foundations, Coal and Coke Handling Plants, and all Ancillary Plant.

All Schemes incorporate the latest developments in horizontal practice, and throughout every stage from design to operation meticulous care is taken to ensure a plant which will give trouble-free and lasting service.

The experience of the technical staff of our Carbonising Department is at your service.





DE
DEMPSTER • ELLAND

ROBERT DEMPSTER & SONS LTD.
ELLAND, YORKSHIRE.

LONDON OFFICE . . . . 57 TUFTON STREET S.W.1.

A NEW WORLD FOR EVERY HOME

Thousands of Britain's housewives, proud and happy in the possession of a NEW WORLD S.3180 Series Gas Cooker, are saying "It's a NEW WORLD for me!" Because of its high performance, low maintenance and low initial cost, this latest addition to the NEW WORLD Series is already widely adopted by many Area Boards for long-term Hire Purchase Schemes.

Britain's Housewives are saying
IT'S A NEW WORLD FOR ME

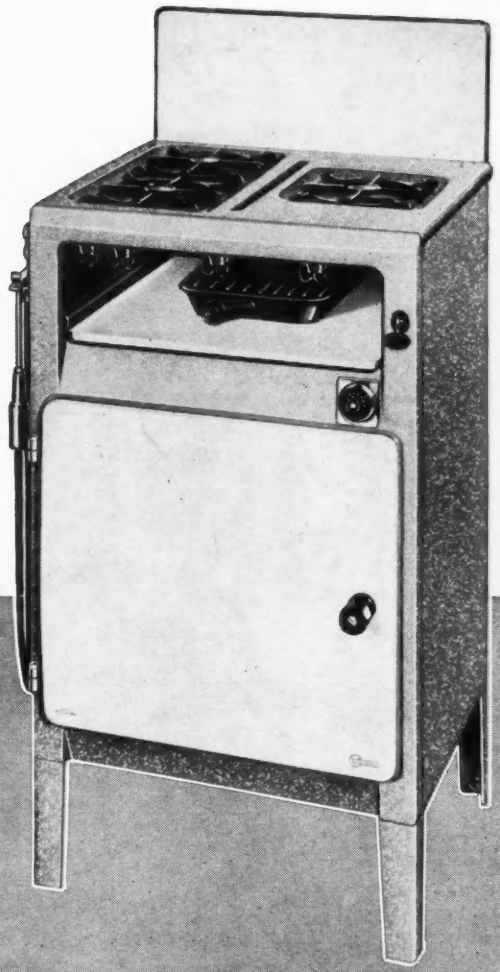
Radiation Group Sales, Ltd., Radiation House, Aston, Birmingham, 6

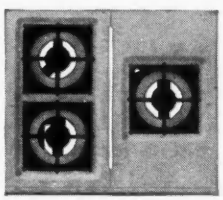
NEW WORLD NEW WORLD NEW WORLD

NEW WORLD No. S. 3180 SERIES GAS COOKERS WITH REGULO CONTROL

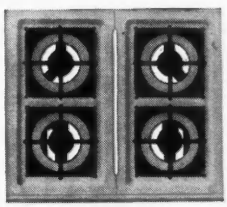
The NEW WORLD S.3180 Series Cookers are of simple construction, specially designed for long, hard use. They have a large oven controlled by a front-reading Regulo. The ovens have rounded interior surfaces for easy cleaning. There is a big, highly efficient grill. The finish is Radar vitreous enamel with the door panel in white vitreous enamel.

The construction of these NEW WORLD Gas Cookers No. S.3180 and S.4180 is covered by the following Patents:—
GB.482 606; GB.483 639; GB.573 554; GB.606 576; GB.623 117.





Plan of Hotplate of S.3180 Cooker. The hotplate has one drilled ring burner for rapid boiling and two Rado burners. The hotplate top consists of two Radar enamelled cast iron sections, with black vitreous enamelled pan supports, all removable for easy cleaning.

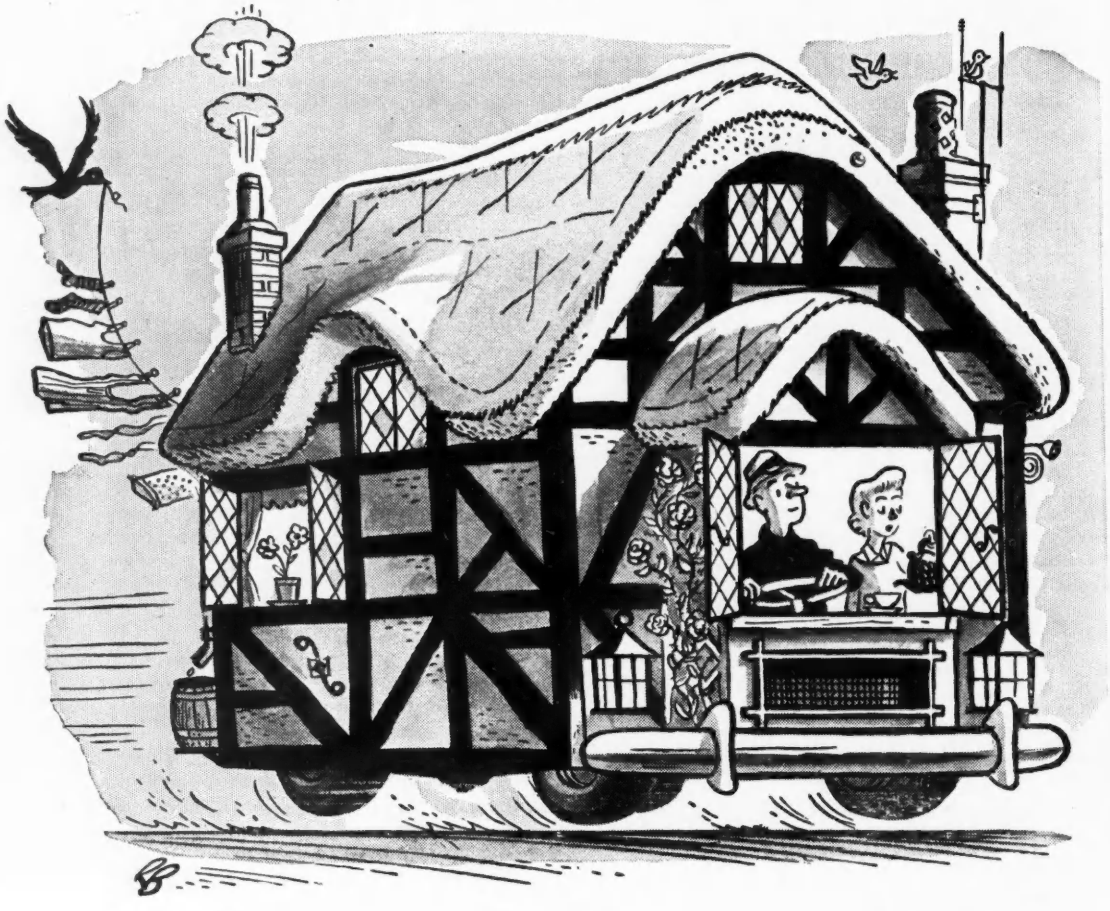


Plan of Hotplate of S.4180 Cooker. The hotplate differs from the S.3180 by the addition of an extra Rado burner, to give a four boiling burner hotplate.

Showrooms & London Offices: 7 & 8, Stratford Place, W.1

NEW WORLD NEW WORLD NEW WORLD

Motor how you will . . .



I will give you

MORE MILES PER GALLON!

says Mr. MERCURY

All kinds of remarkable things can happen when designers really get cracking. But whatever they may think up for you (short of rockets or atomic turbines) National Benzole Mixture will always be the spirit to give you more miles per gallon. That's because benzole is not only an effective anti-knock substance, but it is also a powerful fuel in its own right. Let's hope it won't be long before you can ask for it—and get it!

NATIONAL BENZOLE MIXTURE

13C

A Section of

WILLEY & Co's WORKS

Any

Capacity

Required

Specializing in

INDUSTRIAL METER CONSTRUCTION

WILLEY & CO. LTD., EXETER

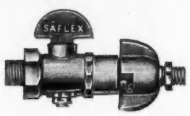
'PHONE : EXETER 4064-5

J. BROWN & CO. LTD.
SAVILE TOWN, DEWSBURY, YORKS.
Supply:–
"BROWNOX-de-LUXE" PURIFYING MATERIAL
Purchase:–
SPENT OXIDE

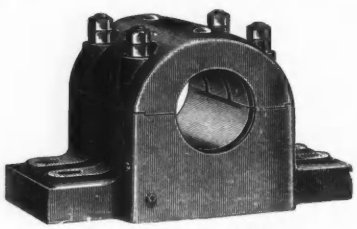
COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.
See our Advertisement Next Week.
REAVELL & CO. LTD. IPSWICH.

Telephone: ASTON CROSS 2451
Telegrams: EMPIRE PHONE BIRMINGHAM

OUR **IMPROVED** PATENT **"SAFLEX"** PLUG-IN COCK
TO SUIT ALL PORTABLE GAS APPLIANCES
WASH BOILERS &c.
Wm. WHITEHOUSE and Company Ltd.
Manufacturers of Gas Main Cocks, Plug-in Cocks, etc.
Empire Works, Brueton Street . . . . BIRMINGHAM 4



MADE ALSO FOR WALL OR FLOOR CONNECTION


Type 164 Engineers' Bearing
Several other Types.

TRADE S.P. MARK
SHAFTS and BEARINGS
ALL TYPES
USED BY LEADING ENGINEERS FOR COAL AND COKE HANDLING PLANTS
IRON CASTINGS AND MECHANICAL DEVICES FOR VARIOUS GAS PLANTS
MADE TO SPECIFICATION
SAMUEL PLATT, LTD.,
ESTABLISHED OVER 100 YEARS.
KINGS HILL FOUNDRY, WEDNESBURY Staffs.
TELEPHONE: DARLASTON 128 :: TELEGRAMS: PLATT, WEDNESBURY

CONVEYORS, ELEVATORS, BUNKERS, ROOFS, HOISTS, Etc.

GOODALL, CLAYTON & Co. LTD.
LEEDS.

COAL AND COKE SCREENING & SIZING PLANTS.
RETORT SETTINGS PRODUCERS, FURNACES REPAIRS.

OXIDE
BEST QUALITY DUTCH BOG ORE SPECIALLY ACTIVATED OXIDE OF IRON
which has stood the test of 70 years and rapidly absorbs 60% Sulphur (wet basis).
Send your enquiries to
GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873
PALMERSTON HOUSE, 34, OLD BROAD STREET, LONDON, E.C. 2.
Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

"KLEENOFF"
THE COOKER CLEANER
Tins for Sale to Consumers. In Bulk for Works Use
OXIDE OF IRON.
BALE & CHURCH, LTD.
33, ST. MARY AT HILL, LONDON, E.C.3.
Telephone Mansion House 1156. *Telegrams:* "Balefire, London."

The LIMIT OF EFFICIENCY CAN BE REACHED *by the use of*
LUX
GAS PURIFYING MATERIAL
Sole Importers:
HARRISONS (London) LIMITED
66, Mark Lane, LONDON, E.C.3
Telegrams: Birchrock, London *Telephone:* ROYal 3120

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

Subscription Rates: Home and Empire :- 45/- per annum; Foreign :- 52/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/6 per line (approx. 7 words) - minimum charge 7/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone: Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. Telegrams: Gasking, Fleet, London.

APPOINTMENTS VACANT

DRAUGHTSMAN with sound knowledge of gasworks and allied chemical plant design required. Age 35 or upwards. Pension scheme. Permanent position to suitable applicant.

Fullest details of experience, age and salary, to R. & J. DEMPSTER, LTD., Gas Plant Works, Manchester, 10.

W. C. HOLMES & CO., LTD., have a vacancy for a TECHNICAL ASSISTANT on the staff of their London office, full details of which will be given to suitable applicants.

Applications will be treated confidentially.

Reply to W. C. HOLMES & CO., LTD., 119, Victoria Street, London, S.W.1.

FULLY qualified HEATING AND VENTILATING ENGINEER required to take charge of and develop heating section of a large concern in London with extensive connections with industrial and domestic consumers. Exceptional opportunity for man with initiative, capable of assuming full responsibility. Superannuation scheme.

Applications, which will be treated in strict confidence, should state age, qualifications, experience and salary desired, to No. 9914, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

TWO experienced GAS SERVICE FITTERS, age 25-35, single, required for gasworks in New Zealand. Assisted fare under emigration scheme. Travelling about November.

Reply, stating experience, to No. 9913, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

NORTHERN GAS BOARD

CARLISLE DIVISION.

DISTRIBUTION SUPERINTENDENT.

APPLICATIONS are invited for the position of DISTRIBUTION SUPERINTENDENT to the above division.

Applicants should be experienced in design and carrying out of distribution schemes, and generally to organise and supervise the Distribution Department including the appliance fitting and maintenance sections.

The salary will commence at £550 and rise to £610 in increments of £15 subject to satisfactory service.

A house is available at a reasonable rent.

The successful candidate will be required to pass a medical examination and to subscribe to such superannuation scheme as the Board may adopt in the future.

Applications, giving details of the qualifications and experience of the candidates and the names of two referees, should be sent to reach the undersigned not later than July 22, 1950.

J. G. AITKEN,
Divisional General Manager.

Gasworks,
Rome Street,
Carlisle.

NORTH WESTERN GAS BOARD

FYLDE GROUP.

HOME SERVICE ADVISER.

APPLICATIONS are invited for the above position. Candidates should be qualified in domestic science and be experienced in the use of domestic cooking and heating appliances and in organisation of cookery demonstrations, lectures and district home service calls.

The commencing salary will be £360 per annum.

Applications, stating age, qualifications and experience, together with *copies* of two recent Testimonials, should be forwarded to the undermentioned within 14 days from the date of this advertisement.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future.

J. G. O. DRAKE,
General Manager.

Princess Street,
Blackpool.
June 20, 1950.

NORTH WESTERN GAS BOARD

LIVERPOOL UNDERTAKING.

APPOINTMENT OF
THREE ASSISTANT CHEMISTS.

APPLICATIONS are invited for the positions of ASSISTANT CHEMISTS on the staff of the Liverpool Undertaking.

Applicants should have had industrial experience, not necessarily in the gas industry, and preference will be given to those holding a science degree or Associate Membership of the Royal Institute of Chemistry.

The commencing salary will be within the range of £450 to £610, depending on qualifications and experience. The successful candidates may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future.

Applications, giving details of qualifications and experience of the candidate, and with the names of two referees, should be forwarded to the Personnel Superintendent, Radiant House, Bold Street, Liverpool, 1, not later than 10 days after the appearance of this advertisement.

NORTH WESTERN GAS BOARD

MANCHESTER GROUP.

APPOINTMENTS,
MANCHESTER UNDERTAKING.

APPLICATIONS are invited for the following appointments within the salary ranges indicated

FITTINGS INSPECTORS.

Applicants should have a thorough knowledge of gas fitting practice and be conversant with the installation, operation and maintenance of all domestic gas appliances. The possession of the Final Certificate of the City and Guilds of London (Gas Fitting) or Ordinary Certificate in Gas Engineering (Supply) or equivalent qualification will be an advantage.

Salary £375 x £15 x £15—£420 per annum.

INDUSTRIAL SALES ENGINEERS.

Applicants should have had considerable experience in the installation and operation industrial gas appliances and should possess the Higher Grade Certificate of the Institution of Gas Engineers (Supply) or equivalent qualification.

Salary £480 x £15 x £15—£525 per annum.

Applications, giving details of experience and stating age and qualifications, should be addressed to the undersigned in suitably endorsed envelopes to be received within 14 days of the publication of this advertisement.

The successful applicants may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt.

JOHN WILSON,
General Manager.

Town Hall,
Manchester, 2.

EDITORIAL ASSISTANT (female) required for the Institution of Gas Engineers. Applicant should be competent shorthand typist, preferably with previous experience of proof reading and editorial work.

Commencing salary £6 to £6 10s. per week. Superannuation. Canteen.

Apply in writing to the Secretary, The Institution of Gas Engineers, 17, Grosvenor Crescent, London, S.W.1.

NORTHERN GAS BOARD

WORKINGTON DIVISION.

TECHNICAL ASSISTANT.

APPLICATIONS are invited for the position of TECHNICAL ASSISTANT.

Salary £435 per annum.

Candidates should have had experience in laboratory work and control of gasworks plant.

Applications, stating age, qualifications, &c., with *copies* of two recent Testimonials, should be received by the undersigned not later than July 10, 1950.

J. G. POPE,
Divisional General Manager.

Gasworks,
Workington.
June 19, 1950.

NORTH THAMES GAS BOARD

VACANCY FOR A MECHANICAL ENGINEER
AT FULHAM WORKS.

APPLICATIONS are invited for the above position from qualified persons to assist in the supervision of the maintenance of all gasworks plant and machinery and to supervise the operation of the steam raising, electric power plants and other general works services.

Applicants should be members of the Institution of Mechanical Engineers or possess an equivalent qualification.

Starting salary will be according to age and experience, but will be not less than £550 per annum. The appointment is of a permanent nature, and pension arrangements will be discussed with short list candidates.

Applications, stating age, qualifications and experience, should be sent to the Staff Controller, 30, Kensington Church Street, London, W.8, quoting reference number 9830, to reach him not later than July 12, 1950.

NORTH THAMES GAS BOARD

APPOINTMENT OF A SAFETY OFFICER.

APPLICATIONS are invited for the vacancy of a SAFETY OFFICER at works in the East End of London.

The main duties of a Safety Officer are to investigate and report on all accidents which occur, and to advise and assist the Works Engineer in the best practices of accident prevention and in the fulfilment of all factory legislation.

Applicants should have had a general education up to matriculation standard (including applied mathematics, physics and chemistry) and an experience of engineering works. Previous experience as a Safety Officer is desirable but not essential.

Pension arrangements will be discussed with short list candidates. Starting salary would be according to age, qualifications and experience, the minimum being £440 per annum.

Applications, giving full particulars, should be addressed to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, London, W.8, to reach him not later than July 12, quoting reference number 9829.

(*Classified advertisements continued on Supplement* 4

APPOINTMENTS VACANT (ctd.

THE Civil Service Commissioners invite applications for 12 permanent appointments as AREA GAS EXAMINER (male) in the Ministry of Fuel and Power.

Candidates must have been born on or before May 1, 1924. They must have either a university degree in chemistry or physics or be Associate Members of the Royal Institute of Chemistry or the Institute of Physics or the Institution of Gas Engineers and should preferably have at least two years experience in gas calorimetry. Candidates who do not possess any of the qualifications referred to will be considered providing they have at least 10 years experience in gas calorimetry.

Inclusive London salary scale £700 x £25—£850. Rather less in the provinces.

Further particulars and application forms from the Secretary, Civil Service Commission, Scientific Branch, 7th Floor, Trinidad House, Old Burlington Street, London, W.1, quoting No. 3145TA. Completed application forms must be returned by July 27, 1950. 7426/150/JW.

WALES GAS BOARD

PONTYPRIDD UNDERTAKING.

DISTRIBUTION AND SALES SUPERINTENDENT.

APPLICATIONS are invited for the position of DISTRIBUTION AND SALES SUPERINTENDENT who will be responsible to the Engineer and Manager of the above undertaking.

Applicants should possess as a minimum the Higher Grade (Supply) Certificate of the Institution of Gas Engineers, or an equivalent qualification, and should have had a wide experience of high and low pressure main laying and of modern distribution and utilisation of gas, including gas fitting. The duties of the successful applicant will also include the development of sales of gas appliances.

Salary will be £550-£610 per annum.

Applications, stating age, training, experience, qualifications, &c., and giving the names of two referees, should be sent to Mr. D. Muir, Engineer and Manager, Gas Offices, Treforest, Pontypridd, not later than July 18, 1950.

Wales Gas Board,
1 and 2, Windsor Place,
Cardiff.

EAST MIDLANDS GAS BOARD

SHEFFIELD AND ROTHERHAM DIVISION.

DIVISIONAL SALES AND SERVICE MANAGER.

APPLICATIONS are invited from suitably qualified persons for the appointment of DIVISIONAL SALES AND SERVICE MANAGER.

The initial salary will not be less than £1,250 per annum.

The Sheffield and Rotherham Division comprises 18 gas undertakings of widely varying size, and the duties of the post will involve initially the re-organisation and co-ordination of existing sales and service activities.

Applicants must be of proved organising ability, tactful and thoroughly conversant with modern gas fitting practice and sales methods.

The appointment will be subject to such superannuation scheme as may be adopted by the Board and the successful applicant may be required to pass a medical examination.

The successful applicant will be required to reside in Sheffield.

Applications, stating age, qualifications and giving full details of experience, must reach the undersigned not later than July 24, 1950.

A. GWYNNE DAVIES,
Secretary.

Beverley House,
University Road,
Leicester.
June 21, 1950.

EAST MIDLANDS GAS BOARD

NOTTS AND DERBY DIVISION.

DERBY UNDERTAKING.

WORKS ENGINEER, LITCHURCH WORKS.

APPLICATIONS are invited for the position of WORKS ENGINEER at the Litchurch Works of the Derby Undertaking at a commencing salary at the rate of £1,000 per annum. The capacity of this works is being increased to 15 mill. cu.ft. of coal gas and 7.5 mill. cu.ft. of carburetted water gas per day.

Applicants must have had practical experience with continuous vertical retort installations, mechanically operated carburetted water gas plants, and have a sound knowledge of works administration. They must also hold the Higher Grade Certificate of the Institution of Gas Engineers (Manufacture) or equivalent qualifications.

The successful candidate will be required to pass a medical examination and the appointment will be subject to the provisions of such superannuation scheme as may be adopted by the Board.

Assistance will be afforded to the successful candidate in the provision of housing accommodation.

Applications, stating age, qualifications and experience, and details of present and previous appointments, together with *copies* of two recent Testimonials, should reach the undersigned not later than July 17, 1950.

A. GWYNNE DAVIES,
Secretary.

Beverley House,
University Road,
Leicester.
June 21, 1950.

EASTERN GAS BOARD

WATFORD DIVISION.

APPLICATIONS are invited for the position of SHIFT FOREMAN at the Luton Gasworks. Applicants should have good experience in the operation of gasworks plant and machinery and in the control of men.

Salary £9 1s. 2d. per week. A house is available at a reasonable rental.

Applications, stating age, training and experience, together with the *copies* of two recent Testimonials, should be addressed to R. Summerson, Works Engineer, The Gasworks, Dunstable Road, Luton.

WEST MIDLANDS GAS BOARD

DIVISIONAL DISTRIBUTION ENGINEERS.

APPLICATIONS are invited for the above posts from engineers with practical and theoretical knowledge and experience of planning and carrying out distribution schemes by low, medium and high pressure. The posts will be in divisions near Birmingham.

The commencing salary will be not less than £800 per annum according to capacity.

The successful applicants may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future. Any existing superannuation rights in the gas industry will be maintained.

Applications, stating age, qualifications and experience, together with details of present and previous appointments, and the names of two referees, should be addressed to the Personnel and Establishment Officer, West Midlands Gas Board, Gas Offices, Edmund Street, Birmingham, 3, to reach him not later than 14 days after the publication of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary.

WEST MIDLANDS GAS BOARD

WOLVERHAMPTON AND DISTRICT DIVISION.

WOLVERHAMPTON DISTRICT.

TECHNICAL ASSISTANT.

APPLICATIONS are invited from suitably qualified persons for the above appointment.

Applicants should have theoretical and practical experience in the operation and control of continuous vertical retorts, purification and by-product plant. A knowledge of carburetted water gas plants would be an advantage.

The salary will be in the scale of £420 to £465 per annum according to age, experience and qualifications.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future. Any existing superannuation rights in the gas industry would be maintained.

Applications, stating age, qualifications and experience, together with details of present and previous appointments and the names of two referees, should be addressed to Mr. F. C. Briggs, Divisional Manager, West Midlands Gas Board, Tunnel Foundry, Fountain Street, Dudley, Worcs, to reach him not later than 14 days after the publication of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary.

PLANT FOR SALE

PHONE 98 STAINES.

FOR SALE. Two W.S. cyl. STORAGE TANKS, 30 ft. by 9 ft.

Two ditto R.S., 30 ft. by 7 ft. diameter.

Tangye SPECIAL STEAM PUMPS, 20,000 and 30,000 gall. per hour, 300 ft. head.

HEAVY CRUSHER, B.D., 25 in. by 12 in., toothed rolls.

Twenty h.p. DIESEL LOCO, 24 in gauge.

LANCASHIRE BOILERS, 30 ft. by 8 ft. 6 in. and 28 ft. by 8 ft., 140 and 120 lb. working pressure.

WEIR CONDENSERS (unused), 160 and 100 sq. ft.

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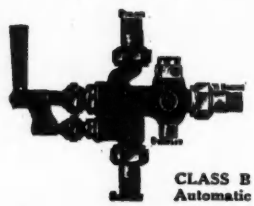

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CONTRACTS OPEN

WEST MIDLANDS GAS BOARD

COVENTRY DISTRICT.

TENDERS are invited from experienced contractors for the PAINTING of all exposed surfaces of the 5 mill. cu.ft. capacity waterless gasholder at Foleshill Gasworks.

Specification, general conditions and form of tender can be obtained on application, and the sealed tender, endorsed 'Waterless Gasholder Painting,' to be delivered not later than July 10, 1950, to the undersigned.

The Board do not bind themselves to accept the lowest or any tender.

A. E. WEST, A.M.INST.GAS E., M.INST.F.,
Engineer and Manager.

Coventry District,
West Midlands Gas Board,
Gas Offices, Gas Street,
Coventry.

WALES GAS BOARD

FLINT GROUP.

TENDERS are invited for the PAINTING OF HOLDERS at the following undertakings :

HOLYWELL AND FLINT.
Gasworks, Greenfield, Holywell. Gasholder No. 2. Distribution Station, Flint. Gasholder No. 1.

CONNAH'S QUAY.
Gasworks, Connah's Quay. Gasholders No. 1 and No. 4.

HAWARDEN.
Gasworks, Hawarden. Gasholders No. 1 and No. 2.

MOLD.
Gasworks, Mold. Gasholder No. 1.

BUCKLEY.
Gasworks, Buckley. Gasholder No. 1.

Further particulars, copies of specification, &c., may be obtained upon application to the undersigned, to whom all tenders in duplicate should be addressed in a plain sealed envelope, endorsed 'Painting,' to be received not later than July 31, 1950.

H. MAYCOCK, M.I.MECH.E., M.INST.GAS E.,
Manager and Engineer.

Gasworks,
Greenfield,
Holywell,
Flintshire.
June 20, 1950.

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CLOCK CONTROLLER REPAIRS.
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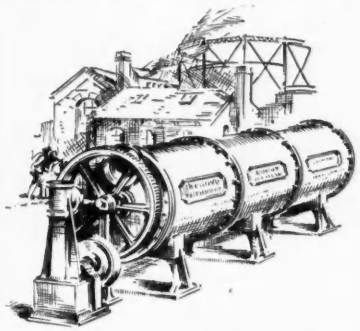
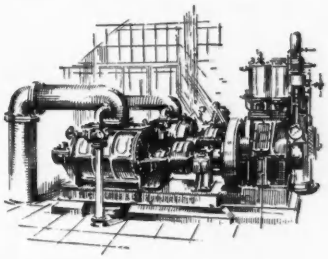
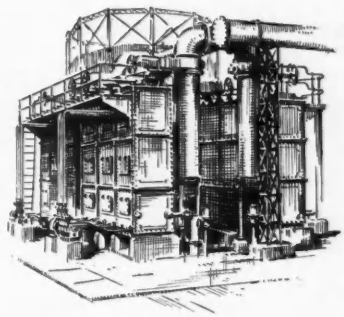


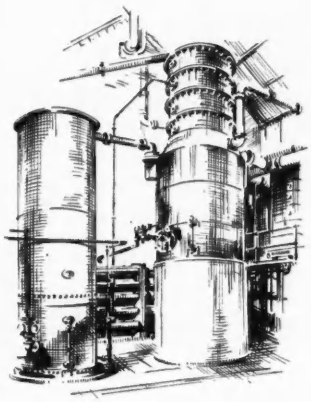
Early Rotary Brush Washer.



Holmes-Connersville Exhausters.



"Multifilm" Static Brush Washers.



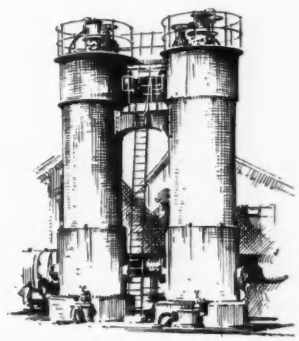
Benzole Plant.

Stoke-upon-Trent

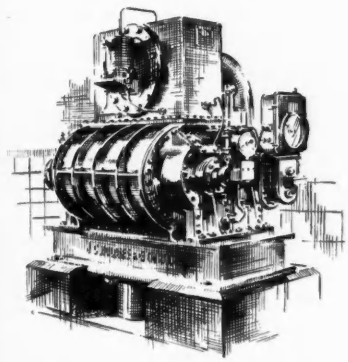
1897	The Stoke Gaslight Company installed a Holmes Rotary Brush Washer.
1925	Five Works amalgamated into the Stoke-on-Trent Corporation Gas Department.
1897-1932	Six additional Holmes Rotary Brush Washers installed.
1933	Holmes "Multifilm" Static Washer at Etruria Works.
1933-1945	Five additional Holmes Static Washers installed.
1950	Work in progress: a complete plant on a new site.

In addition to washers, practically every other type of plant used on a gasworks has been built at Stoke by W. C. Holmes & Co. Ltd.

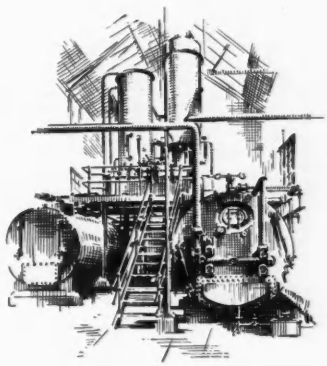
FOUNDED 1850 HOLMES HUDDERSFIELD



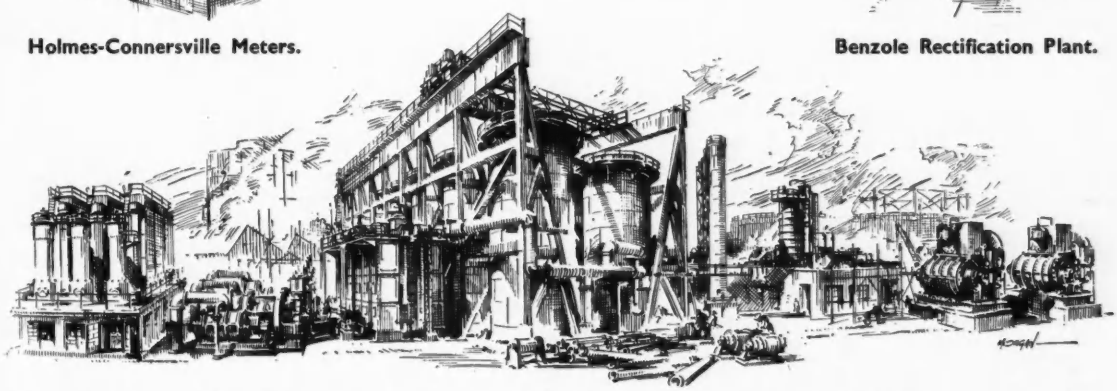
Holmes-Elex Detarrers.



Holmes-Connersville Meters.



Benzole Rectification Plant.



Complete plant in progress on a new site including Detarrers, Condensers, Exhausters, Ammonia Washers, Tower Purifiers, Air Blowers, Benzole Washers, Benzole Recovery Plant and Station Meters.

By kind permission of J. E. STANIER, Esq., G.M., M.I.Chem.E., M.Inst.Gas E., Divisional Manager of the North Staffordshire Group, West Midlands Gas Board.

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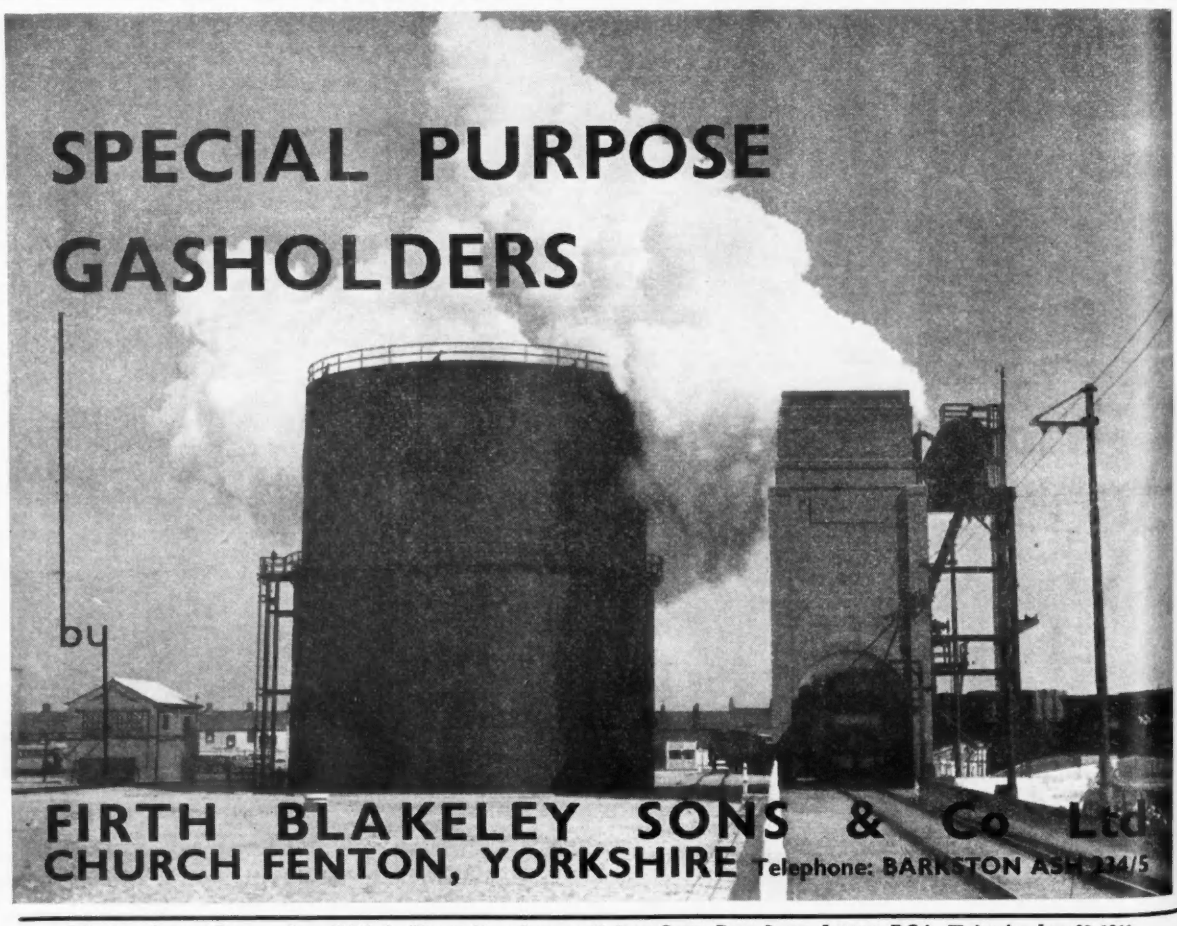
Including High and Low Pressure Gas Injectors, Burners and Nozzles; Blowpipes; Soldering Irons and Stoves; Air and Gas Mixture Controllers; Thermostat Controllers; Back-pressure, Meter Protection and Safety Shut-off Valves; Pressure Governors, Air and Gas Compressors; Radiant Disc Burners, etc.

The illustration shows a concentric ring burner for a 500-gal. varnish boiling pot. Made in 5 sections with 148 stainless steel burner heads, it consumes 1200 c. ft. p.h. from "K.B." Mixture Controllers and Air Blower.



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Work in progress

NORTHAMPTON

This retort house, nearing completion, contains 24 Glover-West Vertical Retorts of the 40 inch model arranged in one bench of three settings of the Balanced Heating Design.

Photograph by H. Cooper & Son, Northampton.

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